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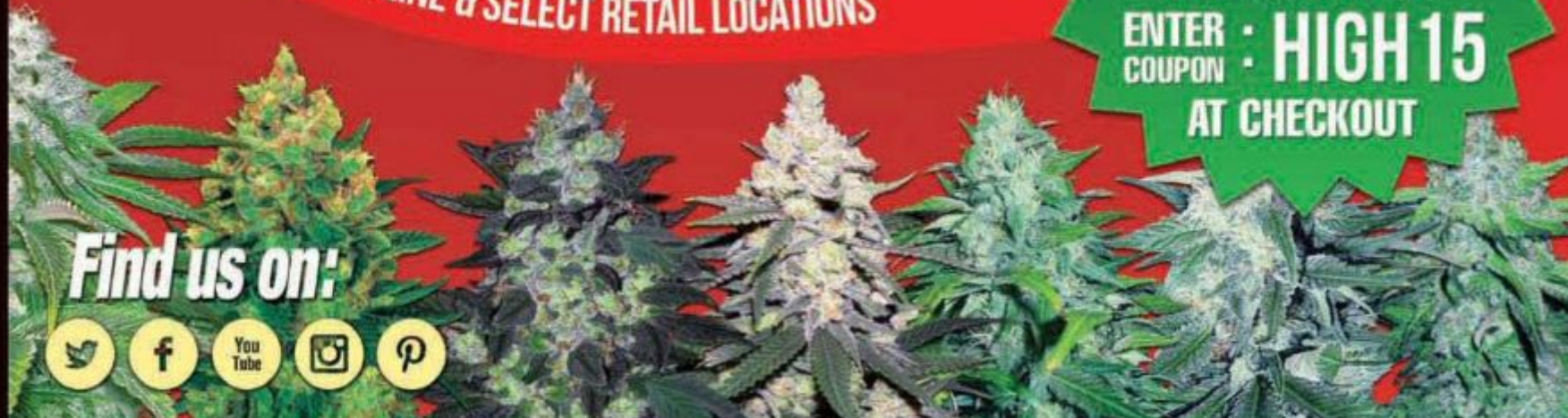
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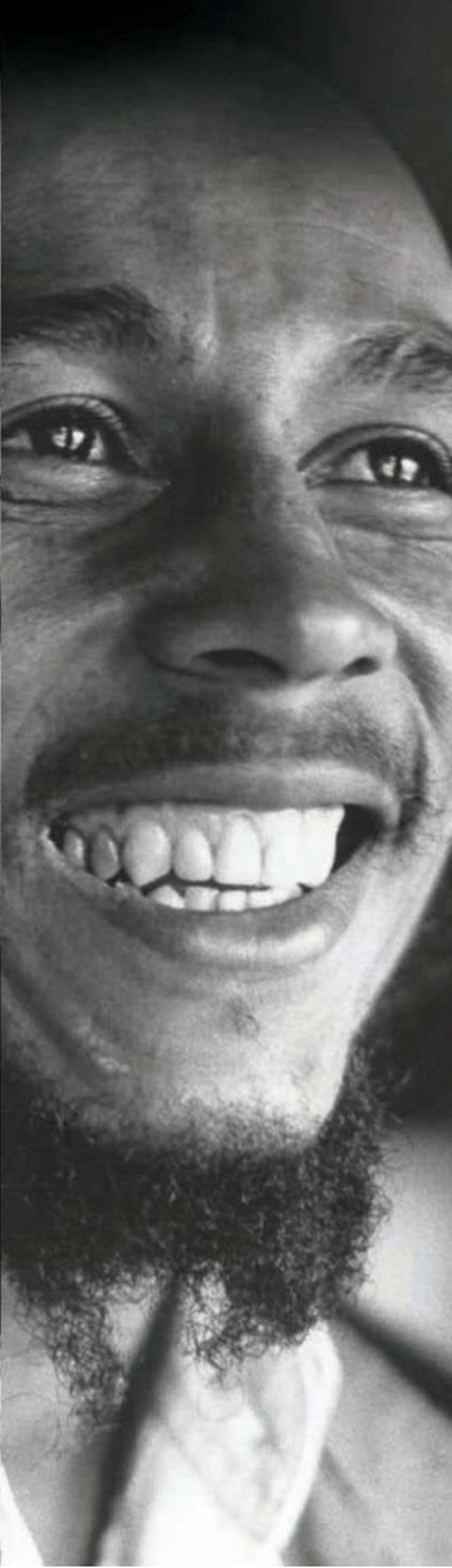
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Their ideas are sometimes out on the fringe, the ragged edge. They have to be, because they're open to the possibilities and realities that change the world.

Some see them as a fish out of water, trouble makers and oddballs. We see them as gifted, profound and uniquely brilliant.

HIGH TIMES APRIL



Desert Bloom's sizable grow facility, which was built out only a year ago, encompasses a 15,000-square-foot indoor operation and an acre of outdoor space, which is being converted from a garden to greenhouses in order to take advantage of Tucson's abundant sun.

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44 Pot & Vets: America's Shame

Many of our military veterans are turning to cannabis for relief from physical injuries or psychological suffering. But not all vets have access to this safe and healthy medicine.

By Michael Krawitz

60 Beyond the Battlefield

At the Desert Bloom grow op in Tucson, Arizona, one vet has discovered that working in a garden provides clarity and healing. *By Dan Skye*

68 High Times Seed Bank Hall of Fame

Since 2007, we've compiled our list of the world's greatest cannabis breeders. This year, we unveil 10 new additions to this group of pot pioneers who have improved the ganja gene pool and made significant contributions to the world of marijuana strains. *By Danny Danko and T.H. Caeczar*

83 Blackout

Why the racist legacy of the War on Drugs stubbornly persists in the legal marijuana industry, and what we can do to end it. *By Josiah Hesse*

92 Concentrated Cannabis

Learn about the history of cannabis extracts and the most popular production methods, as well as the various types of concentrated hash and oil available on the market today. *By Sean Black*

101 The High Times Interview: Bryan Krumm

A psychiatric nurse practitioner and US Army veteran, Bryan Krumm was one of the petitioners whose call to reschedule cannabis was officially rejected by the DEA last August. But Krumm is fighting on and has become the nation's foremost voice for the use of cannabis to treat PTSD. *By Bill Weinberg*

On 4/20/2016, the government of Canada announced that it plans to introduce legislation legalizing cannabis for recreational use by early 2017. The Provinces would then have to set their own rules for sales and distribution.

In making the announcement, Health Minister Jane Philpott said, "We will introduce legislation in spring 2017 that ensures we keep marijuana out of the hands of children and profits out of the hands of criminals". "While this plan challenges the status quo in many countries, we are convinced it is the best way to protect our youth while enhancing public safety." She went on to speak of witnessing "people suffer the devastating consequences of drugs, drug-related crime, and ill-conceived drug policy."

The formal announcement of the new law is expected 4/20/2017. The Canadian cannabis market is expected to be worth \$25 billion annually at maturity within 5 years.



"We had a few good friends over for a dinner party, and one of our friends lit a joint and passed it around. I had a puff."

- The Right Honourable Justin Trudeau
Prime Minister of Canada

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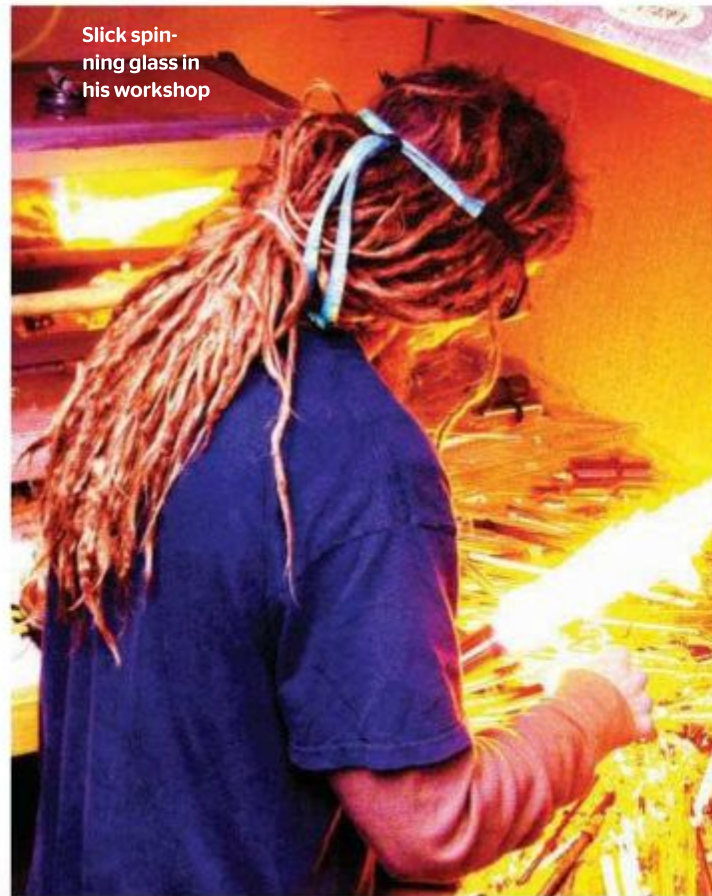
► Glass Artist of the Month: Slick

The glass artist known as “Slick” hails from southeastern Virginia and has been spinning glass since 2000. He honed his skills through a connection with the One of a Kind smoke shop in Portsmouth, Virginia. However, One of a Kind closed its doors in 2003—along with many other shops—due to the Feds’ Operation Pipe Dreams, which targeted the glass industry.

Forced to work in a shed behind his house, Slick began connecting with local growers and collectors before hitting the road and selling his glass guerrilla-style at concerts up and down the East Coast.

Slick has blended the many styles and techniques of veteran pipers to develop his own vision, and he notes that fine ganja also stokes his creativity. “As the secrets of this medium are revealed to me,” he says, “I’m that much closer to creating what my mind’s eye sees.”

Check out Slick’s work at hightimes.com.



Slick spinning glass in his workshop



► On Instagram

During a cultivation consultation in Colorado, @hip2thecrop caught this incredible image of a trimmer making unintentional finger hash with some fire Qush (Bubba Kush Pre-98 x Space Queen) from TGA Genetics. We’d likely regret inhaling the latex... but, man, do we want to smoke those gloves! *High Times* is always interested in seeing pix of your crop. Send us a shot of what you’re trimming (@hightimesmagazine).



► We Want To Hear From You!

Tweet your best high observations and comments our way @HIGH_TIMES_Mag for a chance to be featured on this page! And be sure to follow us on Facebook (Facebook/HIGHTIMES-Mag) and Instagram (@hightimesmagazine) for all the latest news as it’s happening!

@saramax1007: @HIGH_TIMES_Mag lets paint this country green!!!

@happytobehigh: @HIGH_TIMES_Mag I got a 98% on my driving test last month and I was high. I wasn’t baked though. It’s gonna be hard to enforce weed DUI’s.

@BigMacMarley: @HIGH_TIMES_Mag As long as these petrochemical companies can make massive profits off poison they will keep our politicians #Moronc&Useless

@fourtwentyfairy: @HIGH_TIMES_Mag Chillax. @realDonaldTrump has said more than once the #DrugWar is a #waste of money & lives. The sky is not falling.

@heatherlypre: @HIGH_TIMES_Mag we are screwed. Obama couldn’t get it done and he wanted to. No way trump gets anything done cuz he could care less

► Smoking Poll

Marijuana-law reform is at a remarkable crossroads. The 2016 election resulted in four new recreational cannabis states, bringing the total to eight, as well as four new medical ones. Currently, more than half the states in the country have legalized the use of medical marijuana.

However, in the same election, voters sent Donald Trump to the White House. While no one knows exactly how President-elect Trump and his administration will handle cannabis laws, his choice of noted prohibitionist and all-around shithhead Jeff Sessions for attorney general has raised concerns. So we decided to check in with our readers and find out what they think. For this poll, we kept it pretty simple: How do you feel about marijuana laws under a Trump administration—optimistic, pessimistic or about the same?

As expected, most of our respondents aren’t brimming with confidence in the Trump administration’s handling of cannabis, with 46 percent feeling pessimistic. However, despite some indications of a crackdown coming, 31 percent of our poll-takers say they’re feeling optimistic. And then there are those who don’t think there will be much of a change from the Obama administration, with 23 percent saying they’re feeling about the same.

Take our latest poll online at hightimes.com!



How Do You Feel About Pot Laws Under Donald Trump’s Administration?

Optimistic	31%
Pessimistic	46%
About The Same	23%

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*But it's the same old story, when your victory is won
Then I'm just an embarrassment, with a loaded gun.
And the debt is soon forgotten, when the nightmares come to call...*

—FROM THE POEM "THE ETERNAL SOLDIER" BY MARK VINE, 2007

This issue took shape when senior cultivation editor Danny Danko showed me a set of photos of military veterans taken by Mike Whiter, a US Marine veteran himself. As a photography student, Mike was told to shoot what he knows. So he elected to photograph his brethren—fellow vets.

His shots are remarkably stark in portraying the pain and torment on so many of our veterans' faces. They appear on the cover and in the main feature of this issue (written by Michael Krawitz, executive director of Veterans for Medical Cannabis Access).

Mike also organized a round-table discussion with a number of veterans late last year, in which they strongly advocated for access to medical cannabis to deal with the psychological and physical anguish they endure as a result of

their service. I was honored to moderate that panel.

The record of the US Department of Veterans Affairs in addressing our vets' health issues has been nothing short of scandalous. Opioid prescriptions are rampant; so are overdoses and suicides.

But, thankfully, progress has been made on the cannabis front. Veterans now have access—at least in states where it's legal. But those who don't live in a "legal" adult-use or medical marijuana state and who use cannabis "unlawfully" are criminalized for their choice of medicine and stand to lose their benefits and access to VA health care.

We hope this issue sheds light on the intractability and destructiveness of our government's position regarding cannabis. The evidence of its benefits is overwhelming. Our veterans are clamoring for it. They deserve it!

In fact, we all do.

Dan Skye
Editor-in-chief



Too many of our military veterans are still fighting a battle.

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Trump & Pot's Future

For better or worse, Donald Trump is our next president (“Weed Wins! So Now What?,” Mar. ’17). Senator Jeff Sessions, his choice for attorney general, has said: “Good people do not smoke marijuana.” I know plenty of average Joes and Janes—no better than anyone else, but no worse either—who took up. My friends, most of them Republicans or libertarians, think that Trump will quickly see the light on marijuana. Why spend \$1,800 to arrest, prosecute and jail Home E. Fresh for possession of an ounce of weed, when you can make \$50 selling it to him? It’s money that can be used to fix roads, fund schools, etc. My friends are counting on Trump to run the country like a business. They voted for him because he was a famous businessman. What do you predict?

Cliff
Cincinnati, OH

I live in Massachusetts, where recreational marijuana just passed. I’m very pleased about it. However, I can’t stand Trump. What comes next?!

Ann

At this point, no one knows what Trump will do as president. Of course, we hope for the best. But we encourage everyone to remain vigilant. Our victories were hard-fought and hard-won. Don’t get complacent. We have an industry—and our freedom—to protect.

Poetry Policy

I’ve written to *High Times* in the past to inquire about creative cannabis writing, and you’ve said that your policy has always been that you don’t run poetry. My question is: How about now, given that cannabis has done a complete turnaround as far as being more socially accepted, unlike in the recent past?

Tim Scoggins

Complete turnaround? Not quite. Only eight states have legalized adult use, which means we have 42 more to go. Meanwhile, our anti-poetry policy remains in place.

Free Leonard Peltier!

People forget Leonard Peltier was made an example of (“A Warrior Behind Bars,” Dec. ’16). What made him guilty was the fact that he ran, was extradited from Canada, then put on trial and convicted. If he hadn’t run, he’d probably be free to this day. Someone had to go down for



Where's this opioid epidemic I keep hearing about? It's not here in Houston, Texas, that's for sure.

the crime. As the last guy caught, it made him the perfect scapegoat.

James A.

While I agree with you on Peltier, I think *High Times* should stop voicing political opinions, unless it relates to weed.

Eric M.

Come on, *High Times*, keep the political shit to yourself! You're just gonna piss off a bunch of stoners, and we don't need that shit.

Alonzo C.

As we go to press, President Obama is counting down his final days in office. He has the ability to pardon Peltier before he leaves the White House—and we passionately hope he does. As far as *High Times* expressing its political opinions, we've been doing just that for 43 years. We certainly aren't stopping just because you “don't need that shit.”

Opiates 'R' Us

I was deep into opiates and didn't see a way out, until I had no choice. Someone gave me some Amnesia Haze, and it kept me grounded. I went from being homeless to becoming a shareholder in a construction company.

Justin

Send your letters to
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Where's this opioid epidemic I keep hearing about? It's not here in Houston, Texas, that's for sure. Love your magazine, but it sure seems like you're trying to push your agenda by getting down on other substances such as these. Some people are really in actual pain and can use this medication until their condition can be fixed permanently. It's your own fault if you get addicted or overdose. I'm tired of the government trying to direct my moral compass.

J.C.

You may not see the epidemic, but it's very real. Last August, US Surgeon General Dr. Vivek Murthy sent a letter to every doctor in the nation asking for their help in solving the crisis of opioid addiction in America. Overdose deaths from opioids have quadrupled since 1999. As Murthy points out, prescriptions for powerful painkillers have risen to the point where there's enough for every adult in America to possess a bottle of pills. Opioid abuse accounts for over \$72 billion in medical costs alone in the United States each year. But states with medical marijuana laws saved \$165.2 million per year. Preventing addiction and overdose deaths from powerful painkillers, while advocating the many benefits of a natural medicinal plant that has been criminalized by the US government—that's our “agenda.”

LED Facts

Lately, I've been doing some research on lighting. A few weeks ago, I went to the CannaGrow expo in Denver. The various LED companies have nice-looking lights, but if you do the math on them, they aren't worth the money. I broke it down on an Excel spreadsheet. Am I wrong?

Charlie Howlett

Cultivation editor Nico Escondido responds: While LEDs have made some strides over the past few years, we still can't recommend LED lamps as stand-alone solutions for home or commercial growers. Aside from the very high price tags on the better models, LED lamps still don't provide the optimal levels of PAR (photosynthetically active radiation) necessary for high yields and potency. The LEDs that do come closest to high-intensity discharge lights in terms of PAR end up sacrificing their usual advantages of low power consumption and heat emission. However, LEDs have proven to be excellent supplemental lighting—especially in the blue and red wavelengths—when used in conjunction with metal-halide, high-pressure sodium or ceramic-bulb lamps.



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April 2017 **High Times**

HIGH TIMES SEED BANK HALL OF FAME We've added ten additional marijuana strain producers to our illustrious list of the best bud breeders of all time! Find out which seed companies have been enshrined for their beneficial contributions to the cannabis gene pool on page 68. *Photo of Black Lime Reserve courtesy of new inductee Aficionado Seeds.*

**Contact
High**



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High**

CONCENTRATED CANNABIS A beautiful batch of Red Headed Stranger nug run gets poured out and readied for its purge in the vac oven. Learn more about the basics of extraction in part one of our cannabis concentrates series on page 92.
Story by Sean Black, photo by Ry Prichard



**Contact
High**

SHARK SHOCK Don't panic if you encounter Shark Shock, a powerful *sativa* strain. It won't bite, but it will get you buzzed. It's growing in the gardens of Desert Bloom, a busy dispensary in Tucson, AZ. Desert Bloom has been actively advocating for our veterans to have access to medical marijuana. Read "Beyond the Battlefield" on page 60. *Photo by Dan Skye*





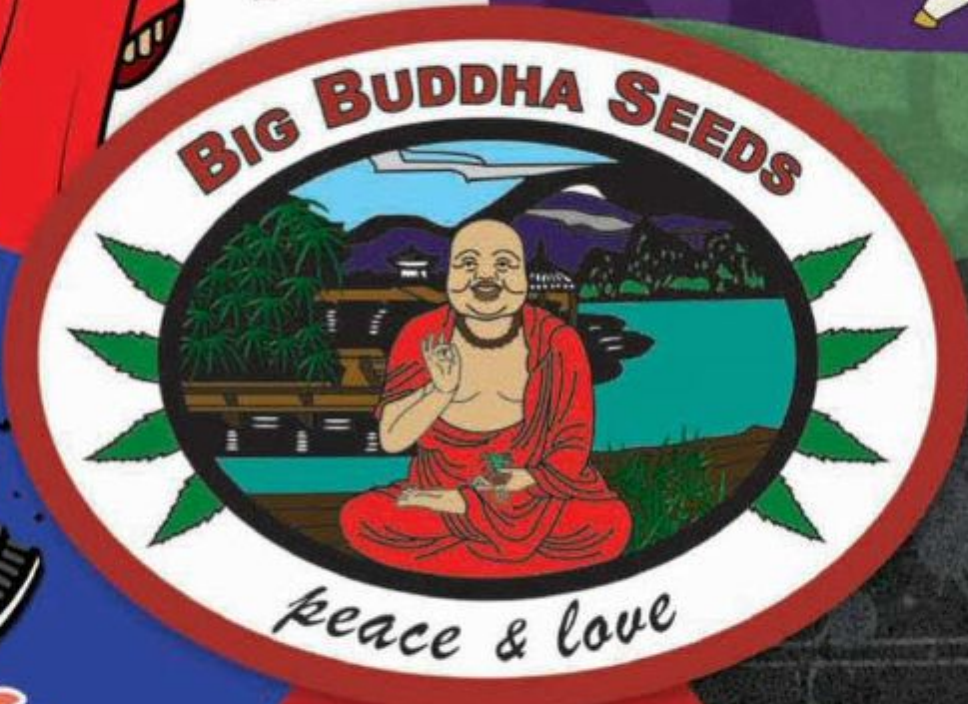
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Highwitness News

Warriors coach Steve Kerr backs medical pot!



Style

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Luxury subscription service AuBox discreetly delivers packages of pot products. p.30



Entertainment

The Orwells

The Chicago-based pop punk quintet takes on a darker tone with *Terrible Human Beings*. p.34



Counter-Social

The censoring of cannabis content by mainstream social media has some marijuana businesses seeking alternatives.

By Tatiana Walk-Morris

In January 2016, Dixie Elixirs, a company that infuses cannabis into chocolate, mints and other items, discovered that their Instagram and Facebook accounts had been shut down without warning.

Because a Dixie Elixirs executive happened to have a contact at Facebook—they were planning to meet about an unrelated matter—the company reached out to the social-media giant and managed to get its account restored, though the process took nearly two months and cost the company valuable growth. For its part, Instagram never responded to Dixie Elixirs' inquiries, and the company lost its page along with thousands of followers.

This is an all-too-familiar scenario for many cannabis businesses, as social-media sites like Facebook and Instagram have routinely shut down pot-centric accounts, cutting off companies from their followers and fans and offering little information on how to remedy the situation.

In 2016, Instagram shut down the accounts of many marijuana-related businesses, including Mr. Nice Seedbank, Exotic Genetix and the National Joint League—all of which lost tens

of thousands of followers that took years to accrue.

Alex Theodos, creator of the National Joint League (@National_Joint_League), told *High Times* that getting the boot from Instagram and losing 52,000 followers “was disheartening—we spent four years putting a lot of work into this and building up an audience, so getting shut down was difficult.”

Fortunately for Theodos, the shutdown had an upside: Rebuilding the NJL Instagram page has allowed him to reengage with his audience. In just three months, the page is up to 19,000 followers—helped along by his personal account (@Ocean_Grown), which boasts nearly 70,000. Nonetheless, Theodos realizes that another shutdown can come at any time and without warning.

Many marijuana businesses end up attempting to rebuild their online presence from scratch after a shutdown, only to be kicked out again after regaining momentum. However, social-media startups like MassRoots and Kannatopia offer an alternative to the mainstream.

These cannabis-friendly sites provide

a platform that allows businesses to engage with marijuana consumers without fear of a sudden shutdown.

MassRoots, a publicly traded social-media site in the vein of Instagram, allows users to create a profile, post updates, connect with consumers and brands, and even rate cannabis strains and products. Since its founding in 2013, the platform has amassed more than 900,000 active users—an impressive number for a niche site, but minuscule when compared with Facebook (over one billion users) and Instagram (roughly 400 million). However, with US medical and recreational sales predicted to reach \$23 billion by 2020, the cannabis industry is on the rise, and MassRoots is positioning itself as an essential platform for cannabis businesses and users looking to connect.

Another marijuana-friendly social-media company, Kannatopia, was created with the goal of providing a safe space for users to discuss cannabis outside of mainstream platforms like Facebook. The Kannatopia website, along with iOS and Android apps, launched in late 2016. “We’ve heard of people getting their accounts shut down or flagged,” says Kannatopia co-founder

« and CEO Kurt Akers, who started the Chicago-based company in 2015. “It happens way more on the brands and businesses in the cannabis space.”

A social-media shutdown costs some cannabis companies more than just followers. Zach Marburger, CEO and founder of Whaxy, a cannabis business-software firm, says his company spent “tens of thousands of dollars” on Facebook’s targeted-advertising service, only to have his advertising account shut down a year ago without notice.

“It impedes your ability to grow,” Marburger says. “If your marketing channels that provide growth for your business aren’t available to you, it’s like marketing with your hands tied behind your back.”

Many in the cannabis industry feel that platforms like MassRoots offer better access to marijuana consumers than Facebook’s ads, which Marburger compares to “throwing darts at the wall.” Using MassRoots and Mantis, a cannabis-specific advertising firm, has helped Whaxy work around the traditional advertising barriers confronting marijuana-related businesses. Even so, the continued lack of access to mainstream channels slows down progress.

A Facebook spokesperson told *HT* that the company enforces its community

Licensed dispensaries don’t sell to consumers directly online; however, if they provide information on how to get to the dispensary, that could be interpreted by Facebook as “facilitating” sales.

standards and advertising policy internationally. Because cannabis is regulated differently around the world, and because Facebook’s goal is to provide a uniform experience for all of its users, the company errs on the side of caution when it comes to pot.

Facebook’s community standards strictly prohibit attempts by individuals to sell, buy or trade marijuana. Its advertising policy states that ads must not promote the sale or use of illegal, prescription or recreational drugs. Facebook couldn’t confirm whether the company planned to update its policy to better reflect the growing acceptance of cannabis, nor would it state how many cannabis-company profiles it had shut down in 2016.

Instagram didn’t respond to multiple requests for comment.

According to Taylor West, the deputy director of the National Cannabis Industry Association, the NCIA has been in talks with Facebook and Instagram about

the ambiguity of their community standards, but it hasn’t had in-depth discussions regarding paid advertising policies.

Many marijuana businesses specifically want to know what Facebook considers “facilitating” sales. For example, West points out, licensed dispensaries don’t sell to consumers directly online; however, if they provide information on how to get to the dispensary, that could be interpreted by Facebook as “facilitating” sales.

“There are businesses that have tried very carefully to follow the policies outlined in the community guidelines and still have their pages taken down,” West notes, “while others are doing things that would seem to violate some of the basic guidelines and haven’t been taken down.”

“This industry is already playing by an extraordinary number of rules and has been willing to do that in order to exist,” she adds. “It’s very hard to play by the rules if those rules aren’t clearly outlined and aren’t consistently applied.” 🌿

HIGH FIVE

Year of the Hoax

In 2016, the gullible were taken in by ganja-related lies. *By Mark Miller*



Active Toker!

In November, Boston University campus buildings were evacuated after cops got a call claiming a man was armed with guns and bombs and had taken people hostage at the library in “Room 420.” The caller later claimed he’d killed a hostage. When cops arrived, they found nothing on-scene; the call was a hoax. BU library rooms aren’t numbered—and these days, even cops should know that “420” is code for getting stoned, not violent.



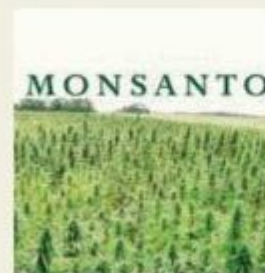
Ebola-Tainted Meth

Last March, police in Granite Shoals, TX decided it would be “humorous” to post a fake alert on their Facebook page warning local druggies to turn in their methamphetamine and heroin for testing because it had potentially been infected with the often-fatal Ebola virus. Chastity Eugina Hopson believed the phony post and brought in her crank for the cops to check, which they confirmed as meth. She was promptly arrested.



4/20 Green Moon

On this past April 20, a unique planetary alignment was widely reported: a 90-minute “green moon” that, coincidentally, occurs just once every 420 years! When the hoax went viral, legit astronomical sources like EarthSky actually had to address and debunk the ludicrous claim. Many were taken in by the photo meme that circulated of the last green moon, even though cameras weren’t too prevalent back in 1596.



Monsanto Marijuana Myth

This hoax, spawned last April, reported that longtime cannabis activist Chris Conrad had been paid by Monsanto to forward the legalization agenda. Why? So the widely hated agriculture corporation could corner the market on genetically modified ganja. Bonus hoax: There’s no such thing as GMO weed, a myth Monsanto itself debunked in 2015.



Chelsea Clinton: Pot Kills

In September, Chelsea Clinton told a Youngstown State University audience in Ohio that medical pot contributed to some deaths in Colorado after bad interactions with other drugs—a complete impossibility, even the DEA acknowledges. Chelsea did say it but, according to a spokeswoman, she didn’t mean that pot is lethal. She just “misspoke.” Really? Then why that choice of words?

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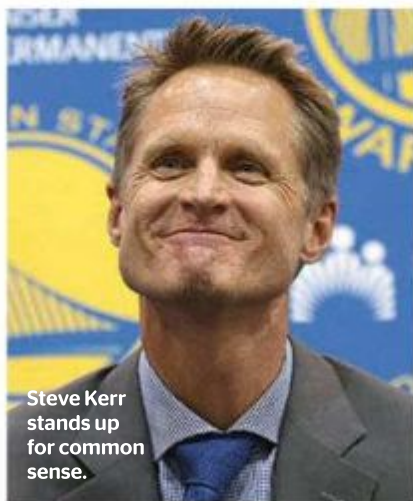
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Steve Kerr stands up for common sense.

Weed Warrior

The NBA's Steve Kerr has come out in favor of medical marijuana. The former shooting guard, now coach of the powerhouse Golden State Warriors, discussed his use of cannabis to help alleviate the chronic pain caused by back surgery.

Although Kerr claims that weed didn't actually help with his pain, he nevertheless stressed his support for medical cannabis, citing its safety compared to harmful and addictive opioids.

"Vicodin is not good for you. It's not. It's way worse for you than pot," Kerr said on the *Warriors Insider Podcast*.

Kerr also called out the NFL for its overreliance on painkillers and its refusal to allow players to manage pain with cannabis. "There's this perception in our country that over-the-counter drugs are fine, but pot is bad," he said. "Now I think that's changing... but I would just hope that sports leagues are able to look past the perception."

Warriors players Klay Thompson and Draymond Green immediately voiced support for Kerr's stance.

Retired NBA player Chauncey Billups weighed in on the hoops-and-weed debate a week later on an episode of ESPN's *NBA Countdown*. Billups revealed that, back in his playing days, he preferred that some of his teammates were high during games.

"I honestly played with players—I'm not going to name names... but I wanted them to actually smoke," Billups said. "They played better like that... [pot] brought them down a little bit, helped them focus in on the game plan. I needed them to do that. I would rather them do that, sometimes, than drink."

BUDS BREAK \$1 BILLION



At the end of 2016, the Colorado Department of Revenue reported that legal cannabis sales in the Mile High State topped the \$1 billion mark in a calendar year for the first time ever—and, incredibly, the state hit that mark with two months to spare.

Colorado dispensaries sold \$720.7 million worth of recreational weed and \$371.4 million of medical marijuana from January through October, giving the state a total of nearly \$1.1 billion in cannabis sales that generated \$150 million in tax revenue. The state plans to use \$40 million of that money for public-school construction projects.

As impressive as Colorado's ganja gains are, they could be just the beginning of massive pot-sale numbers. The ArcView Group, a cannabis-investment network, recently projected that legal marijuana sales across the United States would reach nearly \$22 billion by 2020.

Killer Mike sheds light on legal weed's dirty secret.



Killer Mike Gets It Right

The Grammy Award-winning rapper Killer Mike wants to see more black men and women in the legal cannabis industry, and he recently took to *Rolling Stone* to elucidate. In "How States Can Bring African-Americans Into the Marijuana Industry," Mike explains that "not everyone is benefiting from the marijuana boom. As more and more people race to cash in, it's becoming apparent that African-Americans in particular are being left behind."

Killer Mike, a.k.a. Mike Render, points to a troubling issue that many African-Americans face when attempting to start a career in legal weed: "people convicted of nonviolent drug crimes are often disqualified from participation in the marijuana industry altogether."

While California's Prop 64 attempts to address this injustice, Mike underscores the larger issue: "it is imperative that the people most in need of a second chance actually get one. The price they have already paid for our failed drug policy is steep enough." For more on this subject, turn to "Blackout" on page 83.



War on Medicine

Just when you thought the DEA couldn't possibly lose any more credibility, the agency managed to outdo itself by adding the non-psychoactive cannabinoid CBD (cannabidiol) to the federal Controlled

Substances Act as a Schedule I drug. CBD has already shown tremendous medical potential and proved effective in treating a host of maladies, including epilepsy, chronic pain and multiple sclerosis—and, unlike THC, it doesn't get a user stoned. Nonetheless, the DEA has announced that CBD will now be classified in the same category as heroin.

According to the agency, the move to establish "Marihuana Extract" as a new Schedule I category is intended to help the Feds track medical research. Currently, the DEA has no way of knowing if researchers who apply to study cannabis are actually studying CBD, which is extracted from marijuana. Thus the need to establish it as a substance separate from cannabis—or so the agency asserts.

While the acceptance of marijuana is becoming mainstream in the US the DEA appears to be moving in the opposite direction: Last summer, it rejected several petitions to reschedule cannabis, ignoring both scientific research and common sense as it clings to a failed system of prohibition.



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Mexico to Go Medical?

Toward the end of last year, the Mexican Senate approved a bill to legalize medical marijuana, which easily passed the upper house by a 98-to-7 vote. The legislation must next be approved by the Chamber of Deputies before it becomes law. Should it pass, the bill will grant patients access to cannabis and THC derivatives and allow cultivation for medical and clinical research.

The Senate vote capped a year that saw Mexico evolving on the issue of cannabis use. While broader legalization is still considered a long way off, Mexico is now willing to embrace new ideas for dealing with the drug-related violence that has plagued the country for decades. The medical cannabis bill emerged from a drug-law reform proposal made by President Enrique Peña Nieto in April 2016.

While experts say the proposed legislation isn't broad enough to seriously combat the country's drug violence, it could provide Mexico with an alternative medical industry and deliver relief to many patients.

Teens Down on Illegal Drugs

American teenagers are making good decisions about drugs, according to the federal government's 2016 "Monitoring the Future" survey, which was released last December. The annual survey, which polled 45,000 students in the eighth, 10th and 12th grades nationwide, revealed that students' use of illegal drugs—other than weed—is at its lowest point since 1991.

While past month pot use among eighth graders dropped from 6.5 percent in 2015 to 5.4 percent in 2016, the marijuana-use stats for high-school seniors were essentially the same as the previous year: In 2016, 22.5 percent of 12th graders said they'd gotten high at least once in the last 30 days, and 6 percent copped to getting stoned daily. The annual cannabis-use rate for 12th graders has remained consistent for the last 21 years.

Teens are also choosing cannabis over tobacco: Just 10.5 percent of high-school seniors said they'd smoked cigarettes in the past month.

PREGNANCY POT USE ON THE RISE



According to the *Journal of the American Medical Association*, marijuana use by pregnant women has seen a slight increase in the United States.

Researchers from Columbia University analyzed data from the National Survey on Drug Use and Health for 2002 to 2014, which included responses from 200,510 women between the ages of 18 and 44. Approximately 5 percent of the women surveyed were pregnant at the time.

The data revealed that the number of pregnant women who said they'd used cannabis in the last 30 days increased from 2.4 percent in 2002 to 3.9 percent in 2014. Younger pregnant women (those between the ages of 18 and 25) were more likely to have consumed cannabis; the study found that roughly 7.5 percent said they'd used pot at least once in the previous month, compared with just 2 percent of pregnant women in the 26-to-44 group.



Franco Loja
May 20, 1974 - January 2, 2017

Strain Hunter Franco Loja Dies at 42

The cannabis community suffered a major loss with the passing of Franco Loja, the acclaimed breeder for the world famous Green House Seed Company, on January 2, 2017. Franco spent nearly 20 years with Green House and was a central figure in the Amsterdam cannabis scene. Along with Green House owner Arjan Roskam, Franco also traveled the world searching for landrace cannabis varieties in the popular documentary series *Strain Hunters*.

While there are few details of Franco's death as we go to press, we are told that he contracted malaria in the Democratic Republic of the Congo while researching the benefits of CBD in the treatment of that very disease. He was just 42-years-old.

Franco's passion for cannabis genetics was a powerful force and we at High Times are deeply saddened at the news of his passing.

"Franco was one of the most welcoming and kind individuals I've ever encountered," *HT* senior cultivation editor Danny Danko said. "He was always the same amazingly upbeat and giving person. Enthusiastic for cannabis in a way that made you want to smile proudly."

Fed Up

Officials in Phoenix, Arizona, have so far refused to file charges against two officers accused of forcing a motorist to eat marijuana.

Last fall, 19-year-old Edgar Castro was stopped for speeding by Phoenix police and cited for having a gram of weed. However, Castro claims that Officers Jason McFadden and Richard Pina forced him to eat the weed to earn his freedom. According to Castro, McFadden told him: "Either you eat the marijuana or go to jail tonight." Castro reluctantly swallowed his stash and was allowed to walk home.

Body-cam footage of the stop has been released; however, the officers conveniently turned off their cameras before issuing the ultimatum.

McFadden, Pina and a third officer involved all resigned to avoid being fired. The two former officers refused to answer police investigators' questions about the incident, while a lieutenant who failed to acknowledge the severity of Castro's complaint has been demoted to sergeant.

The Phoenix PD has recommended misdemeanor charges for the ex-cops; however, the case has yet to be submitted to a prosecutor for review.



Abusive cops force suspect to eat his weed.



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Buds for Your Bottom

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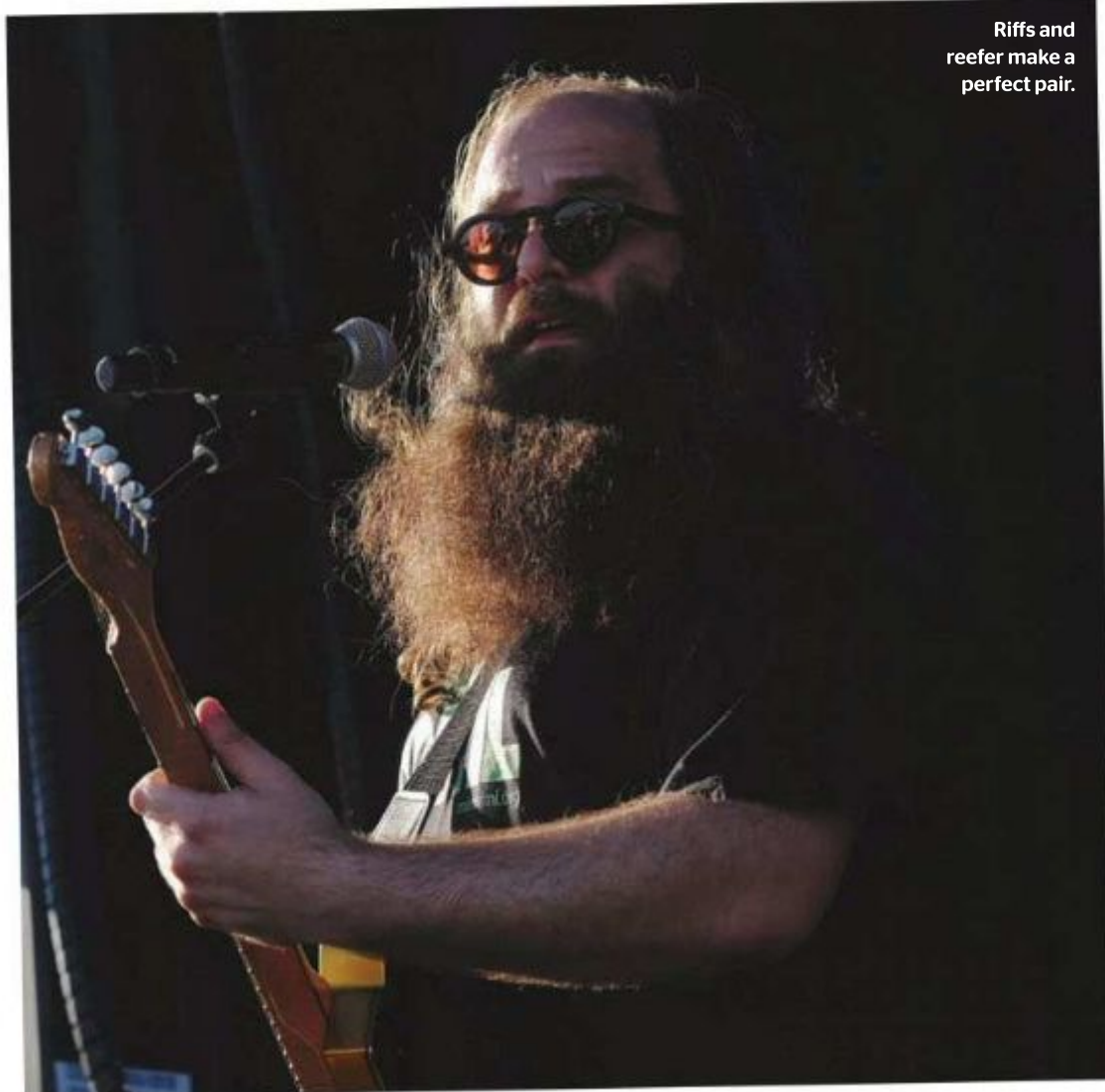


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Riffs and reefer make a perfect pair.

"I believe a lot of the music that I play wouldn't even exist without cannabis."

the most benign and beneficial plants around. Growing up, I had a lot of friends whose parents smoked pot. I just saw that there were plenty of intellectual and progressive people that were doing a lot for the community who were pot users.

I believe that it's much less harmful than alcohol on every level—and it's beneficial. I believe a lot of the music that I play wouldn't even exist without cannabis. And I think it's also the first line of freedom: It's what we do with our bodies. I understand not being able to smoke and drive a car or whatever, but I think it's crazy that you can't grow a plant and be able to smoke it in your house and not get in trouble for that.

We have to preserve the right for individuals to be able to cultivate it for themselves and have a level where it's not taxed, where it can just be a plant that we grow and we can smoke.

Does cannabis play a part in your creative process?

Sure. I think it's great—it gives a different perspective on things. It can totally make you look at anything in a different light, which is very important for an artist. It also frees the mind—I think Louis Armstrong said that jazz probably wouldn't exist without cannabis, and I have to agree. ✨

Michigan Blues Magician

Progression isn't just a blues term for Laith Al-Saadi—he's thinking about the future of marijuana in his home state. He tells *High Times* about his connection to cannabis. *By Mary Jane Gibson*

Ann Arbor, Michigan, has an enduring reputation for being progressive on pot. From the famed 1971 Freedom Rally for poet and activist John Sinclair, who was sentenced to 10 years in prison for getting busted with two joints, to the annual pro-legalization Hash Bash, Ann Arbor residents have upheld civil rights and the freedom to use cannabis throughout the decades-long War on Drugs.

Out of that liberal bastion of sanity, critical thought and creativity comes Laith Al-Saadi. He rose to national prominence in 2016 as a contestant on NBC's *The Voice*,

but he's been making a name for himself as a blues musician for years, opening shows for B.B. King, Johnny Winter, the Yardbirds and many others, and headlining at clubs across the country.

Al-Saadi is a longtime proponent of marijuana legalization, which made him the perfect choice to close out the Cannabis Cup in Clio, Michigan, last August. An appreciative crowd of happy stoners gathered to hear him on a sunny Sunday summer's eve, and we caught up with him after his set to ask him a few questions.

How does it feel to play for a crowd that shares your appreciation for Mary Jane?

You know, man, it's pretty awesome. It's really nice as a musician to play in an atmosphere where people are able to get high.

Tell us how you got involved in the local cannabis community.

I think [cannabis] is one of



Musical Marijuana

Al-Saadi doesn't venerate any musician in particular as a weed icon. "The thing about [cannabis] is, it makes music better in general," he says. "All music becomes weed music. Honestly, I play music because of The Beatles. Everybody's into weed."

MARCH
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21+

HIGH TIMES

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The Orwells:
something
wicked on their
minds...



“If our fan base was just kids our age, then we’d only be cool for about a year. Our fans are 13-year-old girls and older men. Kids our age, it’s not cool to like something for more than a year.”

the oh-so-serious “thematic arcs” that rock critics seem to require to earn their respect. As a result, anyone looking for deep insights in cryptically titled songs like “They Put a Body in the Bayou,” “Fry” and “M.A.D.” will probably find them, even if they weren’t put there intentionally.

“They’re like short stories,” Cuomo says, “but they rhyme—and it’s better than poems, ‘cause there’s music in it.”

In judicious, well-paced amounts, a wee toke of good *sativa* goes a very long way with the Orwells, some of whose members claim cannabis as a central component of their creative process.

“It definitely gives you a different perspective,” says Henry Brinner.

“It’s great to smoke when you’re jamming with friends. You’ll reach somewhere in your mind and come up with melodies and beats that you’d never have thought of before.”

“When I first started smoking weed and writing, I thought my writing was garbage,” says O’Keefe. “But now I realize it helps me think.”

“If you get high and you’re writing,” offers Cuomo, “most of it might be bullshit, but maybe you get a cool line out of it—maybe a couple of good lines. And that’s good, too.” ✨

Pop Will Eat Itself

The Orwells’ earworms crawl from the crypt. *By John Payne*

You might call the Orwells a bunch of nice kids from suburban Chicago, doing what a lot of nice kids from the ‘burbs do to pass the time: make some noise! But then they decided to call their new album, *Terrible Human Beings* (Canvasback Music), a collection of “mutilated pop songs,” so perhaps the formerly so-called party-hearty band has got something on their wicked little minds.

The Orwells—Mario Cuomo, vocals; Dominic Corso and Matt O’Keefe, guitars; Grant Brinner, bass; and Henry Brinner, drums—recorded the album at Chicago’s Electrical Audio studio with producer Jim Abbiss (Artic Monkeys, Adele) at the helm. While staying true to the good-timey poppy punk that stamped their earlier EPs and two previous albums—*Remember When* (2012) and

Disgraceland (2014)—there’s both a feral ferocity and a stripped-down melodicism on tracks like “Buddy,” “Hippie Soldier” and “Heavy Head.” According to the band, *Terrible Human Beings* owes its newfound directness to the Pixies, and they even titled one track “Black Francis” in homage to the indie-rock icons’ main man.

“We don’t agree on a lot of stuff, but, yeah, that was a good band,” Cuomo says. “They’re just really fucking good. Every time you hear them, it’s just, ‘Wow, *such* a good band.’ Plus they’re just dudes and a chick—they don’t look like a band.”

“Nobody else sounds or writes songs like them at all,” says Grant Brinner.

“The thing for us that’s intriguing is that they’re minimalists—it’s pretty straightforward.”

Adds O’Keefe, “It’s harder to make a simpler song that’s good than just add a bunch of shit to a bad song. At the core, it’s just a really good song.”

Really good songs are what *Terrible Human Beings* is all about, with the band taking giant steps forward in that direction with the benefit of a few years’ experience in the music industry. You get a smarter sense, the Orwells say, of what it takes to write songs that are teen-beat-friendly while possibly having some lasting value as well.

Yet Cuomo, the chief lyric scribe, prefers to go easy on



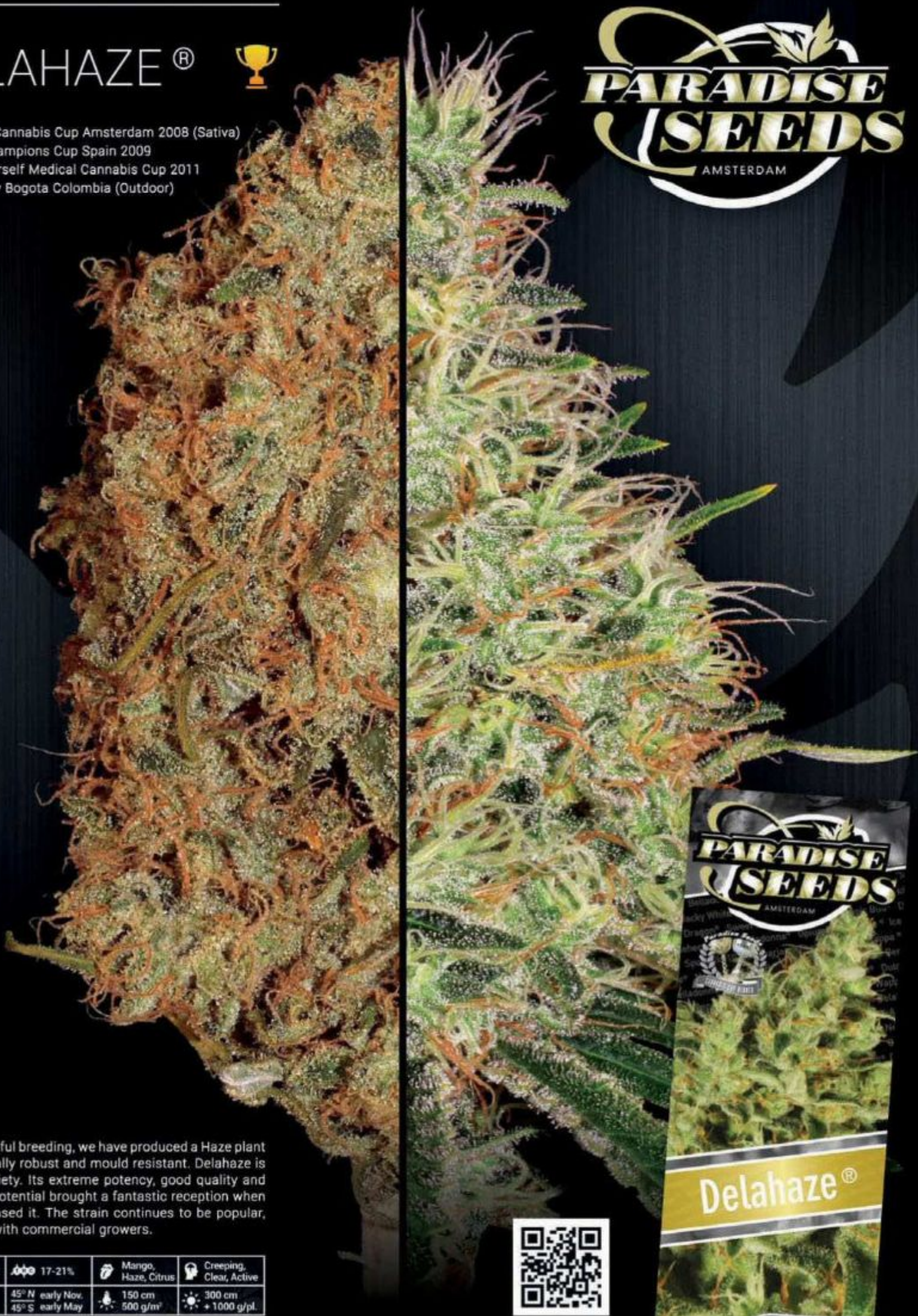
Aural Austerity

“When they’re coming up with songs, a lot of times musicians make the problem of saying, ‘What can we add?’ They should be asking, ‘What can we take away?’ Instead of doing too much, you’ll have a stronger song if you do less.” *Mario Cuomo*

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Author R. Gage Amsler searches for peace of mind through pot.

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There's a serendipity to the story of R. Gage Amsler, whose career as a soldier inflicted a terrible psychological toll, but also took him to a remote corner of the earth where he found an ancient landrace strain to bring him relief. His memoir, *The Strains of War*, opens in Afghanistan's Hindu Kush, where Amsler was with a team scouting territory for US forces. Surveying a hillside, they discovered a fragrant purple cannabis grow.

Amsler sensed he'd found his Holy Grail: the strain that could ease his own psychic strains. He uprooted the plants, leaving his medical kit behind as compensation, and took them back to the base.

Most of his book consists of flashbacks. Pinned down by sniper fire some days later, Amsler revisits scenes from his life and what brought him to this precarious point: a broken family, joining the Army, combat in Iraq, losing buddies to hostile fire. He writes that PTSD "robbed me of my life, my family, and my future. I was called back into the arms of war again and again."



The Strains of War
R. Gage Amsler
(Self-published)

Pharmaceuticals only induced lethargy in him. Cannabis, by contrast, helped—and launched his search for the most effective cure. He believed the answer could lie in a landrace strain with the ideal balance of THC and CBD—a strain dating from

before the era when growers began breeding to favor THC, the cannabinoid that gets you high (as opposed to the one that calms you).

Military backup eventually arrived, rescuing Amsler from the snipers. He lived to smuggle his seeds back to Michigan. They did the trick. "On smoking it, I discovered an instant and longer-lasting relief from my PTSD than any medication I had ever been prescribed before," he writes.

Amsler believes this strain could be a "cure" for PTSD and hopes his book will result in funding for research into its application—because, he writes, "medical cannabis has the potential to save thousands of soldiers' lives." *Bill Weinberg*

MUSIC RECOMMENDATIONS



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Ultimate Care II
(Thrill Jockey)

The electronic duo Matmos made their mark sculpting clever dance tracks out of sampled sounds that emanate from the body, human and otherwise: teeth grinding, flesh being burned by cigarettes, and cows having their uteruses pumped full of air with a vacuum cleaner, then played like a

bagpipe. The very cleanly recorded *Ultimate Care II* bubbles with music derived only from the sounds of the titular washing machine: one long track traversing humorously funky rhythmic and melodic variations that end with the alert noise that signals when the wash is done. *John Payne*



Dungeon
Unholy Speed Attack
(Tapes From Hell)

Three tracks of raw, land-ravaging D-beat-driven thrash metal are played with lightning emitting from every orifice—as fast and well-written as any early Destruction or peak-era Sodom, as rabid as Doom's *Police Bastard*, yet somehow wholly new. The vocals are just sore and unfiltered, and

the guitar almost trips over itself in the title track. Hands down the best thing I've heard in ages. By the time you read this, there will be a new 7-inch out on Me Saco Un Ojo. I suggest you get it: They only made 111 of these, probably because the cassette deck melted while they were duping it. *Polly Watson*



Private Interests
Only for a Moment
(Forged Artifacts)

The secret weapon wielded by these raucous Twin Cities power-poppers is their wicked-fingered lead guitarist, who I note is also capable of playing entire sets wearing blackout sunglasses. His skills are most evident on the title track, but he brings plenty of liquid light to the

Jam-influenced "I Need You" and the jangly, sweet-voiced "Bow Down." The standout on this six-song clear-red cassette is "Show and Tell," which, with its instant sing-along chorus, is as memorable as the Records' "Starry Eyes" or NRBQ's "I Want You Bad," two classics of the genre. *Polly Watson*

BOOK RECOMMENDATIONS



Jazz, Race, the Beats & Drugs
Martin Torgoff
(Da Capo Press)

In 1943, saxophone giant Lester Young turned Jack Kerouac on to marijuana. Kerouac later wrote *On the Road*, the classic novel that would jump-start the Beat Generation and, eventually, the '60s counterculture. This literal hand-off of expanded consciousness from elder to disciple symbolizes America's

hip-story from black jazz roots to white bohemia, including jazz daddy Louis Armstrong's passion for "muggles" (pot), and poet Allen Ginsberg's effort to fight the Drug War's cruelty. Torgoff's gritty, grabbing read emphasizes drugs as crucial tools in the pursuit of creativity. *Michael Simmons*

TV RECOMMENDATIONS



Broad City, Season 3
Ilana Glazer and Abbi Jacobson
(Comedy Central)

Yaass, queen! Abbi and Ilana are back with their awesomely high hijinks in season three of *Broad City*, now available on DVD. This season boasts a wonderful embarrassment of riches, with guest stars like Tony Danza, Adam Levine, Whoopi Goldberg and Hillary Clinton; my favorite was

Alan Alda as the world's kindest chiropractor. The ladies take us through their ridiculous adventures in New York, from hunting for apartment rats to workin' the Hillary campaign. Highlights include Ilana wearing a blond-wig bike helmet and Abbi going full Tyson with a pugil stick. *Aelie Călin*

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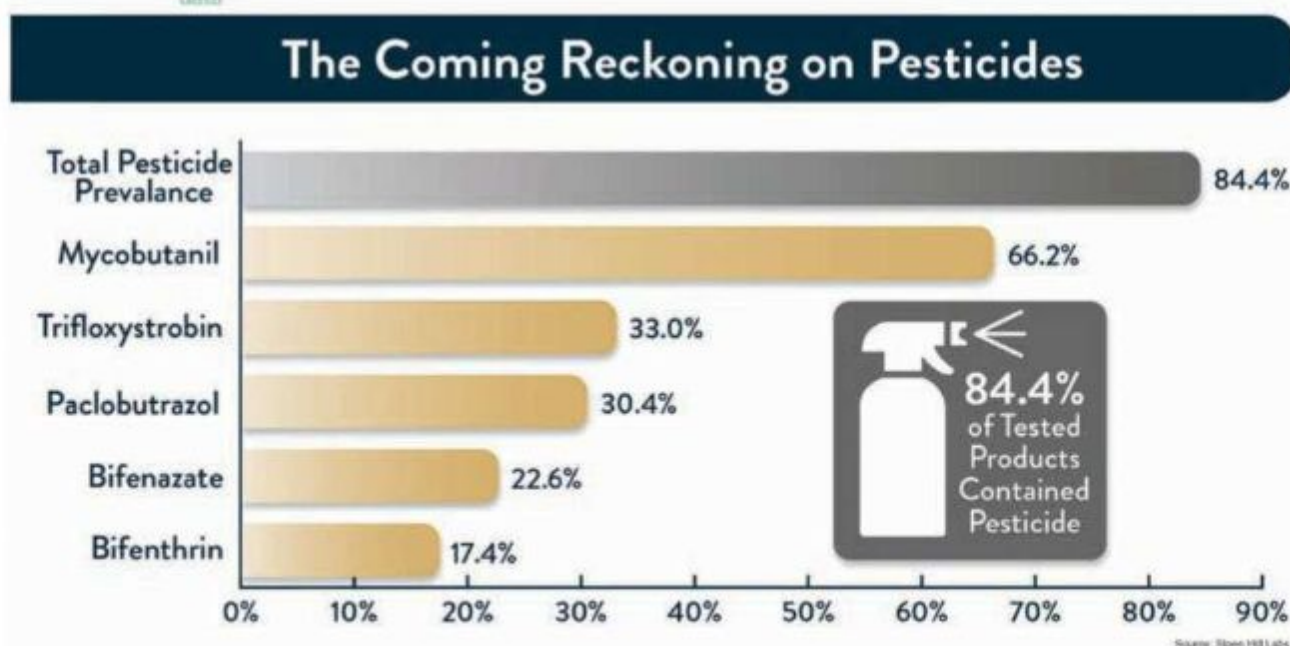
Is Your Cannabis Safe?

Consumer concerns over pesticides leap to the fore.



John Kagia is executive vice president of industry analytics for New Frontier Data

Many growers will need to change their practices to ensure that their products can be sold.



THE PREVALENCE OF pesticides and contaminants in retail cannabis is one of the most important issues facing the industry. As more states require testing, the high levels of pesticides in retail products are causing alarm among consumers and regulators concerned about the potential health effects of these chemicals, especially on medical patients with compromised immune systems.

The extent of the problem was highlighted by Steep Hill Labs, a leading cannabis-testing company. It found that, if California implemented the same testing requirements adopted by Oregon, 84 percent of the products tested in the state would fail—an alarmingly high number for the country’s largest cannabis market. Nor is the pesticide problem confined to California: The Association of Commercial Cannabis Laboratories estimates that half of the cannabis tested around the country contains measurable levels of pesticides, though the exact number is still not known. As Jeffrey Raber, president of the ACCL, states: “Cultivating-agent contamination is a huge concern.”

Technological advances in testing have enabled us to see the true extent of the

problem. As the ACCL reports, “Using state-of-the-art mass-spectrometry-based approaches, we have broadened the ability to detect more of these cultivating agents and have come to understand that this problem is larger and more complex than anyone initially suspected.”

One of the most prevalent pesticides, myclobutanil, is of particular concern in smoked forms of cannabis because it turns into hydrogen cyanide—a compound that is toxic to humans—when combusted. Sixty-six percent of the cannabis samples tested in California contained myclobutanil, indicating its widespread use despite the health risks it poses.

The intensive use of pesticides in loosely regulated cannabis markets is understandable: The plant is highly susceptible to fungal infections that can damage entire crops, which can be extremely costly to growers. This leads some to overuse pesticides, resulting in residual levels in the harvested plants that far exceed what is considered safe for human consumption. A single joint of contaminated cannabis may not be enough to kill or cause severe harm, but the cumulative effects of ingesting contaminated cannabis may pose serious long-term health

risks to cannabis consumers.

The increased focus on pesticides is being fueled by a greater interest on the part of consumers in the quality of the cannabis they purchase. In illicit markets, cannabis consumers had very little access to information about its source, its potency or its quality. With the transition to legal cannabis markets, especially those that now mandate testing, consumers are seeing for the first time the extent of the contaminant problem in cannabis, and are increasingly demanding more information on product quality.

Cannabis testing has become more widespread as recreational and medical marijuana states include testing requirements in their regulations. Under the newly passed adult-use law in California, for example, all cannabis will need to be tested before it reaches store shelves.

While the precise testing requirements have yet to be finalized, the extent of the pesticide problem revealed in Steep Hill’s analysis indicates that many growers will need to change their practices to ensure that their products can be sold. This may make it more challenging for growers, but the public-health concerns raised by unfettered pesticide use are too significant to ignore. ✨

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(Grand Daddy Purps)
"Good Smoke—smells so strong you need to keep it in a jar."
—Nashville, TN

(Bubblegum)
"I love this strain!"
—Philadelphia, PA

MARKET ANALYSIS

Prices by the ounce

All indices, with the exception of the Western Index, finished April above their previous month's average. The Western Index dipped to \$268 per ounce, continuing a three-month trend of falling prices. The US Price Index has essentially held steady over that same time period.

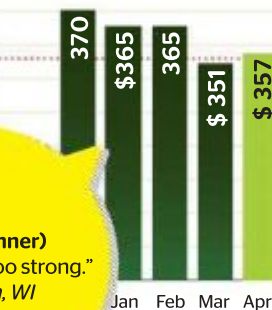
US Price Index
YTD Average: \$327



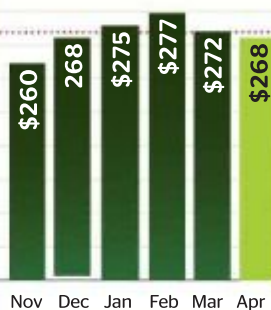
Eastern Index
YTD Average: \$350



Southern Index
YTD Average: \$356



Western Index
YTD Average: \$272



(Bruce Banner)
"This stuff is sooo strong."
—Madison, WI

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
ALABAMA	Birmingham	Northern Lights	\$350
ARIZONA	Tucson	Tahoe OG	360
CALIFORNIA	Los Angeles	Larry OG	260
COLORADO	Boulder	Headband	275
CONNECTICUT	Manchester	Master Kush	300
FLORIDA	Miami	Super Silver Haze	380
GEORGIA	Atlanta	White Widow	350
HAWAII	Maui	Mango Kush	380
ILLINOIS	Chicago	Blue Dream	350
INDIANA	Indianapolis	Green Crack	380
IOWA	Des Moines	Master Kush	360
KANSAS	Topeka	Trinity	275
KENTUCKY	Covington	Diesel	300
LOUISIANA	New Orleans	Three Kings	400
MAINE	Thomaston	Gorilla Glue	200
MARYLAND	Baltimore	Girl Scout Cookies	380
MASSACHUSETTS	Boston	Headband	360
MICHIGAN	Detroit	Critical+	350
MINNESOTA	Minneapolis	Ghost Train Haze	380
MISSISSIPPI	Jackson	Lowryder	375
NEVADA	Las Vegas	Bubba Kush	380
NEW JERSEY	Trenton	Sour OG	225
NEW YORK	New York	JillyBean	400
NORTH CAROLINA	Raleigh	Purple Haze	375
OHIO	Cincinnati	Hydro	275
OKLAHOMA	Oklahoma City	Querkle	320
OREGON	Portland	MK-Ultra	200
PENNSYLVANIA	Philadelphia	Bubblegum	330
RHODE ISLAND	Pawtucket	Skywalker	280
SOUTH DAKOTA	Bismarck	Mr. Nice Guy	360
TENNESSEE	Nashville	Grand Daddy Purps	225
TEXAS	Austin	Chem Dog	200
UTAH	Salt Lake City	Deadhead OG	300
VERMONT	Burlington	Jedi Kush	360
VIRGINIA	Richmond	Sensi Star	400
WASHINGTON	Seattle	Strawberry Cough	260
WISCONSIN	Madison	Bruce Banner	350
INTERNATIONAL			
AUSTRALIA	Adelaide	Pineapple Chunk	\$230
CANADA	Montreal	Tangerine Dream	C\$160
SPAIN	Barcelona	Nepali OG	€140

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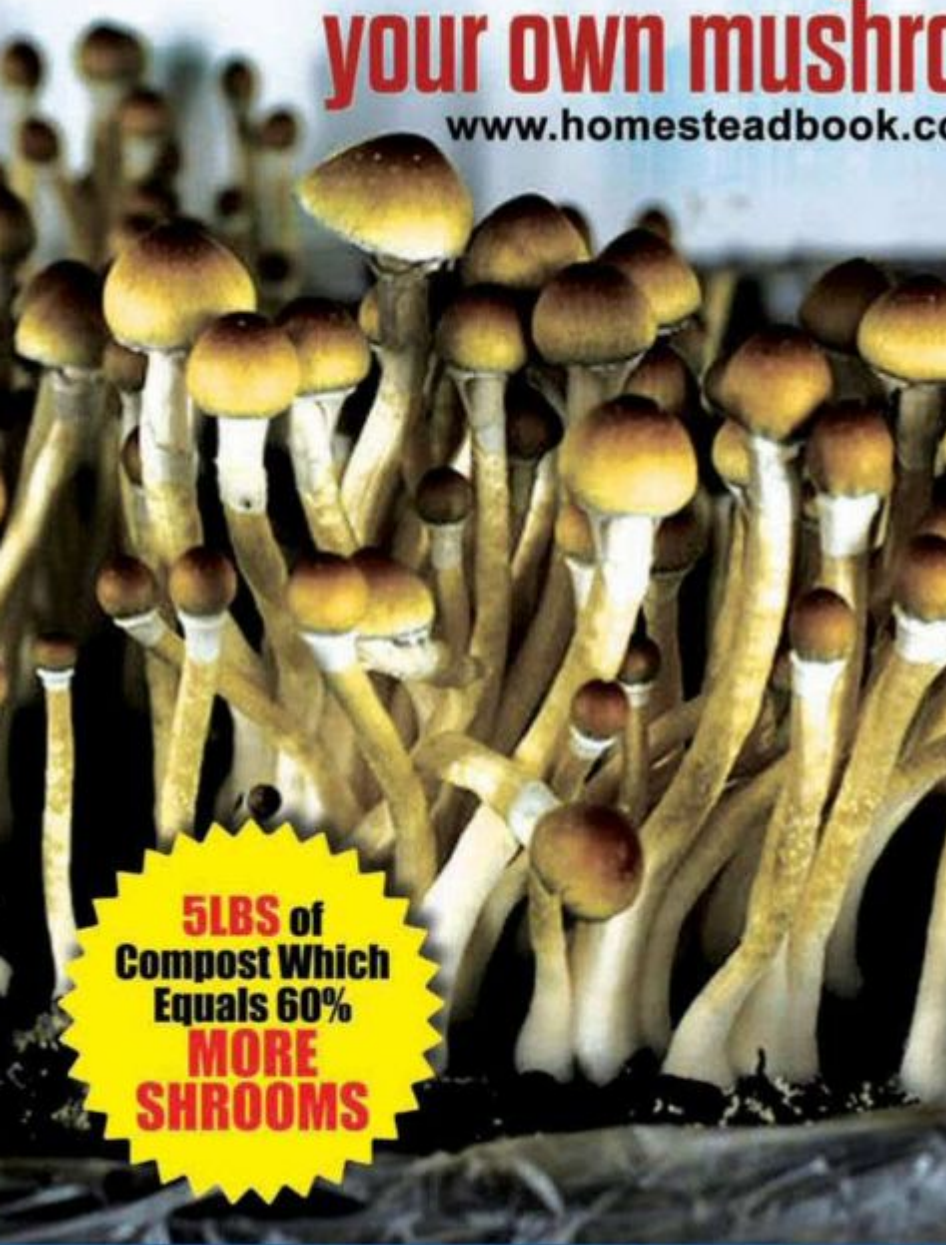
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U.S. MARINE

Pot & Vets: America's Shame

They fought for their country—but if they used cannabis to treat their physical or psychological wounds, their country turned its back on them. Slowly, though, the battle for cannabis is being won on the home front. *By Michael Krawitz*

Our first president probably wasn't aware of the many medicinal properties of cannabis. He probably never smoked the stuff either. Nonetheless, George Washington was an enthusiastic hemp farmer. But if he'd known how important cannabis would be to the well-being of future military veterans—and how the US government would one day outlaw the plant entirely—the Bill of Rights might very well have included a few clauses about the right to grow, as well as the right to share.

Many of America's early settlers brought cannabis extracts and tinctures with them from the Old World. Mainstream medicine recognized and began marketing cannabis after it was added to the US Pharmacopeia in 1850. It would come to be known as a medicine for veterans after the Civil War. In fact, an early cannabis-remedy advertisement quoted the former commanders of the Union and Confederate armies, Generals Ulysses S. Grant and Robert E. Lee, endorsing Hasheesh Candy, a product made available through an importer on Beekman Street in New York City.

According to the ad, Grant stated that cannabis was “of great value for the wounded and feeble” as well as being “harmless.” Lee said: “I wish it was in my power to place a dollar box of the Hasheesh Candy in the pocket of every Confederate soldier; because I am convinced that it speedily relieves debility, fatigue and suffering.”

Ironically, history books often identify morphine addiction

as the “soldiers’ disease” that afflicted veterans of the Civil War, and the first national drug-prohibition laws were passed as a result. Could it be that the medical system set up for veterans in the 1800s was leaning too heavily on opiates and not relying enough on cannabis—just as it is today?

There is now ample evidence that the wide-scale application of cannabis therapeutics can dramatically lower both suicide and overdose deaths. One of the most consistent trends since California voters passed Proposition 215, the state's historic medical marijuana law, has been cannabis use replacing prescription pharmaceuticals. This has led to fewer overdose deaths and lessened the dangerous side effects of these pills.

The US military studied cannabis use among soldiers in the Panama Canal Zone from 1916 to 1929 and concluded: “No mental or physical deterioration effects of smoking marihuana could be demonstrated. But with this statement should be considered the fact that the soldiers observed were all young men who had smoked marihuana for an average of less than two years.” The study also found that there were fewer problems from cannabis use than from alcohol.

In 1918, World War I veterans returned home and found pharmacy shelves well stocked with cannabis products. But by the end of World War II, cannabis medicine had disappeared: The Marihuana Tax Act of 1937 outlawed the plant. Unless their doctors had attended medical school before the war, this new generation of veterans never learned of cannabis as a medicine.



This photo of a G.I. taking up on his shotgun is one of the iconic images from the Vietnam War.

The Outlawed Plant Returns

The Northern California pot scene owes a lot to veterans. Following the Vietnam War, many flocked to rugged NorCal in a search for cheap land and solitude—and to escape authority.

Part of the Vietnam experience was exposure to phenomenal strains of cannabis. Many vets returned to the States with the seeds of the cannabis future stuffed inside their duffel bags.

One of the most iconic images from the Vietnam era is a photo of soldiers taking up through a shotgun barrel. It became a powerful statement for peace, and, not surprisingly, the cannabis leaf was often drafted into service as a protest symbol against the war. But this came with a high price: Cannabis use was somehow tied to the US failure in Vietnam, and marijuana became the target of a devastating backlash from conservative America.

Even so, the rise of the modern hemp and medical marijuana movements shares an important connection with veterans. Jack Herer, known as the “Hemp-eror” for his tireless promotion of the cannabis plant, was an Army vet. Dennis Peron, the driving force behind Prop 215,

Many vets are tossing out opioid medication in favor of pot.



No Pot Casualties

In more than six years of clinical experience with medical cannabis, the Veterans Health Administration has never identified a problem with its use as a therapeutic agent—and the VHA is the largest medical system in the world. We should assume that an agency created to provide the best possible medical care to all US veterans would tell us if it had identified real or potential harm from cannabis used medicinally. The VHA hasn't done so because, when it comes to harm, there's nothing to report.

We hope two things are true: first, that the VHA, recognizing a historic medical opportunity, is collecting and analyzing the results from tens of thousands of cannabis patients; and second, that doctors and nurses working in the system are doing likewise by charting cannabis use and the various maladies it's used to control.

Since July 2010, when the Veterans Health Administration published a directive defining cannabis as a medicine, the option opened for tens of thousands of vets to use it medicinally and become involved with the VHA's treatment protocols in all of the “legal” cannabis states and territories. The VHA's leadership has backed veterans as much as it's able and should be recognized for its compassionate, science-driven policy of using cannabis medicinally wherever possible.

The 2016 election saw eight more states legalize medical or recreational use. I believe the veteran population was a large piece of each state's decision. *Al Byrne, lieutenant commander, US Navy (ret.); co-founder, Veterans for Medical Cannabis Access*

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served in the Air Force. However, it was the passage of the US Department of Veterans Affairs' medical marijuana policy in 2010—updated in 2011—that really opened the door for pro-cannabis veterans' groups. In the past five years, dozens of cannabis-oriented service organizations run by and for veterans have emerged on the national scene.

The VA's medical marijuana policy (VHA Directive 2011-004) expired in January 2016. But the clinical practices it set forth officially remain in force until the directive is rescinded or replaced. The policy, which has three parts, decrees that medical marijuana should be treated like any other medicine and that doctors should look for any contraindications on a case-by-case basis under a treatment plan based on the patient's particular needs.

The rise of the modern hemp and medical marijuana movements shares an important connection with veterans.

The second part of the policy reiterates the DEA warnings issued throughout the VA system by the VA's general counsel. Many VA doctors are still convinced that they're subject to prosecution merely for writing a cannabis recommendation or filling out forms for patients to qualify for treatment under state medical marijuana laws. That threat was lifted outside the VA long ago.

Finally, VA policy reiterates that cannabis possession is still a federal crime and that VA property is federal. Thus veterans, like anyone else, are still subject to arrest for possession on the grounds of VA facilities.

Time for a Change

Federal employees lack free speech, and the VA lacks the courage to challenge the DEA. The *Walters v. Conant* decision by the Ninth Circuit Court of Appeals clarified to doctors across the country that it was safe to write recommendations—though not prescriptions—for cannabis. The Supreme Court refused to hear a challenge to that decision. But the law never compelled the DEA to clarify that the



Therese Carrozzino has kept quiet about dumping her pills—until now.

I was stationed in Baumholder, Germany, and El Paso, Texas, and medically discharged from the Army in November 2013 to return home to South Jersey. After sustaining physical injuries, I was put on narcotics and muscle relaxers for anxiety, depression, PTSD, etc. The Army and VA tried every antidepressant, mood stabilizer and anxiety medication known to man on me. But marijuana saved my life. I was able to put down the narcotics and continue to live. I wasn't a walking zombie anymore. Marijuana is the best medicine out there, and it needs to be recognized as such. *Therese Carrozzino, specialist E-4, US Army*

When you witness the worst the world has to offer, it's very hard to find the beauty in anything. Being a prescription zombie is like being trapped in a pitch-black room. As soon as I smoked my first joint, it was as if someone flipped the light switch on: I saw everything from a whole new perspective. Life was beautiful again. I was able to heal. I was able to process my trauma. I was able to smile. As we discover how cannabis treats our psychological wounds, we also begin to rebuild that camaraderie with other veterans that we so desperately miss from our military service. Along with fellow veteran Barry Richardson, we've made it our mission to grow and provide quality medicine to suffering veterans. We hope to single out specific strains that help veterans better cope with the symptoms of PTSD. *Dakota Blue Serna, lance corporal, US Marine Corps*



“ He didn't pass away
he woke up from a dream. ”

July 12, 1962 - Dec 16, 2016

I lost more than my father; he was my best friend.
He had a rough start to life,
but through it all he was the best father a son could have.
I may not have always acknowledged it, but I grew to understand
the challenges and I appreciated him more than ever as I grew into adulthood.
I hope I can be as good a father as him.

He gave me morals and values.
Instilled in me a tireless work ethic that he set by example.
Taught me never to cut corners and always strive for the best.
To help others. He taught me what it meant to be a man.

He was a kind man that would lend a hand, or a tool, to anyone that asked.
He was a builder, a maker, a provider for his family. He loved to fish and we spent many nights out
on his boat smoking and fishing. He liked most animals more than most people sometimes but
No matter what, you could always count on him.

Without him I probably wouldn't be in California and
I know that's true for several other people. He would support me no matter what.

Cannabis was something through which we shared a deep connection. I learned to grow from him and with him.
He was instrumental to my development in life and in my career. When my allergies to Cannabis led me to other
consumption options he helped me make my fist batch of water hash in his kitchen with basic tools. The same kitchen
that I helped him build. From there, it was off to the races and he was by my side every step of the way. When I had to
move some packs, because I was the first in our family to graduate college, he felt I had too much to risk, so he would
insist on being the "transporter".

We lived our dream together... long before our successes, winning at High Times and going on stage was just a dream.
When I called him after his flower's Emerald Cup Cartridge win and I told him the news, he filled with
emotion and was so proud at that moment. I am so grateful. He didn't pass away; rather, he woke up from a dream.

Thank you, Cannabis. Through our experiences my bond with this sacred plant has strengthened even more.
I am appreciative for all the relief and strength it provided my father throughout his battle against cancer.
Thank you to all that have supported GoldDrop—we are a small close family and I consider you all part of it.

Please know that you made a truly good man's dreams come to life.
Finally, thank you to my team—those who kept things going while I dealt with
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recently and throughout the past months.
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agency wouldn't prosecute doctors for writing recommendations.

Representative Sam Farr (D-CA), who will retire from Congress in early 2017, was the first lawmaker to author a federal bill to create free-speech rights for VA doctors, allowing them to recommend cannabis if they choose. More recently, this effort was taken up by Representative Earl Blumenauer (D-OR), who introduced the Veterans Equal Access Amendment. It was duplicated in the Senate as part of a larger bill called the CARERS Act. As a result, the Senate has had a meaningful dialogue with the DEA and the Department of Veterans Affairs on this issue, and it's now true that, at some level, the VA knows that its doctors can safely recommend cannabis to their patients in medical marijuana states.

How this will manifest itself in future policy is still unclear. Veterans' advocates have been waiting nearly a year for word on the VA's much-anticipated updated policy on cannabis. It's important to note that the Veterans Equal Access Amendment was passed by both houses of Congress as part of the budget process in 2016—but the language was stripped from the final version of the bill by a conference committee, just before President



Mike Whiter

Five years ago, I was sitting on the couch in my South Philadelphia living room taking handfuls of pills and drooling on myself. Nodding in and out of consciousness, I didn't care whether I lived or died. I honestly hoped on most days that I would fall asleep and not wake up. Today, I'm a successful photographer and outspoken advocate for veterans to have safe access to medical cannabis, and I attribute much of my own recovery to it. PTSD held me down, and the pills prescribed by the VA put even more of a weight on me, pushing me further down. Cannabis helped me get off of the pills and regain a sense of self, something that I'd lost after knowing nothing but being a Marine for nearly 11 years of my life. Cannabis, in conjunction with weekly therapy sessions, helped me get to know myself as Mike again. PTSD and pharmaceutical treatments would have killed me. Cannabis saved my life. *Mike Whiter, staff sergeant, US Marine Corps*

When I returned home from Iraq in 2005, I was faced with difficulties I never would have imagined. I didn't think I was capable of succumbing to some of the demons I battled either. At this phase of my life, I feel blessed to be alive, free of institutionalization or incarceration—and freed from the bondage of opiate addiction. The outcomes would have been drastically different had it not been for the unconditional love from my family and peers, and finding access to the cannabis plant. I was able to overcome years of PTSD-driven misery, fueled by drug abuse and ineffective pharmaceuticals. Cannabis was an exit drug for me, providing a better quality of life with far less harmful side effects. I like the fact that I can treat a multitude of issues or symptoms with cannabis simultaneously through various delivery methods. More than 22 veterans, plus one active-duty service member, are killing themselves each day. The growing opiate epidemic in our population is heartbreaking. We need to give cannabis a chance to contend in modern medicine. It will save a great deal of lives. *Sean Judge, specialist, US Army*

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In compliance with CA Prop 215 SB 420, Section 11362.5 and 11362.7 of HSC.



Obama signed it into law.

Since 2012, veterans have also led an effort to add PTSD (post-traumatic stress disorder) as a qualifying condition for medical marijuana, which has resulted in more than a dozen updated state laws. This effort was based in part on the experience of nurse practitioner Bryan Krumm [see Interview, p. 101] and others in New Mexico, the first state to allow PTSD as a qualifying condition, as well as on a mountain of scientific research conducted in other countries. In Arizona, attorney Ken Sobel and nurse Heather Manus of the Arizona Cannabis Nurses Association presented this research to a judge, who ruled that a “preponderance of evidence support[s] cannabis as a treatment for PTSD.”

Although countries like Israel, Canada and Croatia have acted upon this evidence and created programs that deliver cannabis to veterans as part of their benefits, the United States refuses to acknowledge this research. Instead, federal law still officially maintains that cannabis has no medical value whatsoever.

As a result, when the VA enabled veterans who live in medical marijuana states to use cannabis, it created a



Opioid-related overdose and suicide are common among vets.

I served 14 months on the Great Lakes as a seaman. Then I went to school to become an electrician's mate. I was assigned to Station Channel Islands Harbor in Oxnard, California. While stationed there, I started having episodes of depression. Naval doctors started me on a cocktail of pills for headaches, depression and anxiety. Before I was discharged, I had pill addictions and a drinking problem. Within months of my discharge, I was fired twice and began to have family issues. I was on a downward spiral and started to believe suicide was my only option. Then Michigan legalized medical cannabis. My outside therapist pointed me in the direction of cannabis and helped me obtain my card and become a grower. With his therapy and cannabis, I was able to kick the prescription drugs and the booze.

I broke through. I realized there is therapy in helping others with cannabis. It was then that I began to heal. Cannabis saved my life. It gave me purpose and a means to help other veterans.

Barry Richardson, petty officer third class, US Coast Guard


I served my country from 1993-97 in the 82nd Airborne Division. While serving as a medical specialist, I was exposed to and trained to treat all levels of injuries, both on and off the battlefield, from PTSD to bullet wounds. During service, I sustained injury and was prescribed large doses of opioids, making me a heartless, lifeless zombie. Cannabis replaced them all within one year. It's my experience that cannabis creates community and that community can save lives. I encourage people to create cannabis-friendly community centers in their hometowns and bring a healthy, healing community together. *Steven Jacob Lull, specialist E-4, US Army*

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conflict. The US Constitution requires that all citizens must be treated the same under the law. "Treatment by geography" is inherently unconstitutional: All vets should feel secure that they will not lose compensation or pension benefits merely for using cannabis—legal or not. Financial benefits are suspended only in the case of felony incarceration, but they can be reinstated upon release. However, there are still far too many veterans living in states where access to medical cannabis is limited or nonexistent.

The fact that so many of our veterans are not able to use a proven therapy—one that thousands of Canadian veterans currently benefit from—is a disgrace. As long as the VA fails to embrace this valuable medicine nationwide, while continuing to dispense enormous amounts of pharmaceuticals—a number of which have been tied to high rates of addiction, suicide and overdose deaths—there's plenty of reason for America to be profoundly ashamed! ✨

Michael Krawitz is executive director of Veterans for Medical Cannabis Access.



The question is simple: Which is the healing agent?

At 23 years old, I walked out of the VA hospital with prescriptions for Percocet, Klonopin and Ambien: Percocet for back pain, Klonopin for anxiety and Ambien for sleep. Little did I know it would mark the beginning of an entirely new kind of battle—one with an enemy I was completely unprepared to fight: prescription-drug addiction. It didn't take long to develop an all-consuming dependence on opiates, benzodiazepines and sleeping medication. At 28, I made the decision to take my life back and detox off all the meds that had enslaved me. I tried desperately to get into the VA's inpatient rehab, but after repeatedly being turned away, I knew I was on my own. I locked myself in my apartment, stocked up on food, water and marijuana, and gave my girlfriend my car keys. Seizures, sleepless nights and

severe flu-like symptoms lasted over a month. It was one of the hardest experiences of my life. The only substance I allowed myself during that time was marijuana. It gave me the ability to eat, get a bit of sleep, and served to alleviate my back pain and anxiety. It's been nearly three years since I've had a drug prescribed to me, and I have marijuana to thank for turning my life around. I use marijuana almost daily to combat pain, anxiety and sleeplessness. If only the VA had been willing and able to prescribe marijuana from the start, how many lives would be different, better or even saved? It's "high time" for a change. *Pearson Crosby, staff sergeant, US Marine Corps*

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ADVANCED NUTRIENTS PIONEERS MARIJUANA GROWING EDUCATION

Advanced Nutrients has recently launched **Grow Med University (GMU)**, a free, self-directed online hydroponics course that reveals the latest techniques, tips, tricks, and technology used by the most competitive marijuana growers in the world.

Step-by-step tutorial videos, white papers, efficacy reports, and informative scientific articles allow any grower with an Internet connection to hone their skills and help produce their best harvest yet, free of charge.

Why Marijuana Growing Education Is a Top Priority for Advanced Nutrients

The medical marijuana industry is growing every minute. Legal marijuana is the fastest-growing industry in the U.S. and a slew of other businesses are jumping on the bandwagon as well. At present, 23 U.S. states allow medical-marijuana use, while 7 have legislation pending to issue licenses for it.

4 states and Washington, D.C. have legalized cannabis outright, while another California referendum in 2016 will allow recreational use in a state that was the first to permit medical marijuana use way back in 1996. It is estimated that medical marijuana is already a multibillion-dollar industry (without counting recreational sales).

While a great deal of information and misinformation appears daily on the Internet, novices and more advanced growers alike are always looking for a source of reliable information which can serve to improve their yields, both in terms of quality and quantity. A whole community of growers inhabit the growers' forums and are always looking to perfect their growing skills, without having to wade through hours and hours of irrelevant or misleading forum posts.

GMU is a bold step in a better direction, and by elevating the general level of education among growers, the quality of marijuana, especially as medicine, will skyrocket worldwide. This isn't just for connoisseurs. It's for children with epilepsy, as well as adults suffering from the effects of chemotherapy, chronic pain, and glaucoma. Thousands of YouTube videos help document the impressive results of therapeutic cannabis use.

Grow Med University is a course representing the cumulative experience of scores of the most competitive growing experts. From day one, it was envisioned as a community-driven resource, providing much needed knowledge to the medical-marijuana community. If you have a passion for hydroponics and growing marijuana to help patients get rid of illness and pain, then **Grow Med University** is for you.



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Beyond the Battlefield

Cannabis provides comfort and healing for our military veterans. At Desert Bloom in Arizona, it also provides opportunity. *Story & photos by Dan Skye*



Working in a grow op has been hugely therapeutic for Ricardo Pereyda (left).

After finishing his tour in Iraq, Ricardo Pereyda was redeployed to Germany and became aware of changes in his behavior.

Something was wrong. He was in a constant state of aggravation and couldn't sleep. Negative thoughts filled his head.

Pereyda had served in the Military Police Corps of the US Army, part of a quick-reaction force that conducted IED sweeps, provided convoy security, and escorted VIPs and "high-value" individuals. "It was a rough deployment," Pereyda admits. "In addition to combat, we lost an individual to a heart attack before we even got to the Iraq theater. And at the end of my tour, a 19-year-old private committed suicide in his bunk."

Even before arriving in Iraq, Pereyda was already suffering a fair amount of anxiety. Back home in Tucson, AZ, his brother had been shot, and he'd lost a close friend to a tragic accident. Once Pereyda was stationed in Germany, "I knew I really was off," he says. At the Army hospital, he was told he was suffering

from post-traumatic stress disorder. But he balked at the diagnosis.

"I was like, 'No, no—not me! That's a career-killer. I told you I couldn't sleep!' So they gave me a bunch of Valium, and that's what I used the whole time I was in Germany."

When he returned to the States, Pereyda was stationed at Fort Huachuca in southern Arizona—and his mental state deteriorated further. He was surrounded by people who had ridden desks and dodged deployment. "I was angry," he says, "and I was losing all military bearing."

Pereyda was placed on the temporary-disability retirement list. For the next three years, he was treated for severe PTSD, undergoing myriad evaluations at a Veterans Administration facility where he was prescribed a host of pharmaceutical drugs—which only worsened his predicament.

"Whatever I said was bothering me, they had a pill for," he recalls. "Amitriptyline, Xanax, Paxil... but worse was the PTSD

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“It turned my life around, helping me to be in the present. Cannabis facilitated my healing and allowed me to pursue my dreams.”

He doesn't categorically bash the VA, though. “Let me be clear: It was a safety net. I'm not sure I'd be here without the care I received. But I question the treatment. Doctors fill in boxes, obey protocols. I don't think they have a real understanding of what vets have gone through. So their answer is always pills.”

After he separated from the service, Pereyda was determined to forge ahead. No longer required to follow the programs of treatment that Uncle Sam dictated, he made a determined effort to wean himself off the prescription cocktail provided by the VA. He'd used cannabis in the past, but now he recognized it as medicine. He credits it with helping him move forward.

“It turned my life around, helping me to be in the present,” he says. “Cannabis facilitated my healing and allowed me to pursue my dreams.”

Pereyda now looks at 2009 as his pivotal year. He was introduced to Veterans Education Transition Services (VETS), an outstanding organization at the University of Arizona that offers the tools and assistance



Forty strains are in production in the Desert Bloom gardens.

diagnosis itself, which branded me as sick, a loser—damaged goods. I wandered in a haze until 2009.”

Pereyda received his honorable discharge that year after being labeled “undeployable.” Others certainly recognized his worsening state. Concerned with his increasingly erratic behavior, his family had actually performed an intervention prior to his discharge, which Pereyda describes as “the best thing that ever happened to me.”



Aari Ruben, Desert Bloom's owner, crossed paths with Pereyda and readily hired him.

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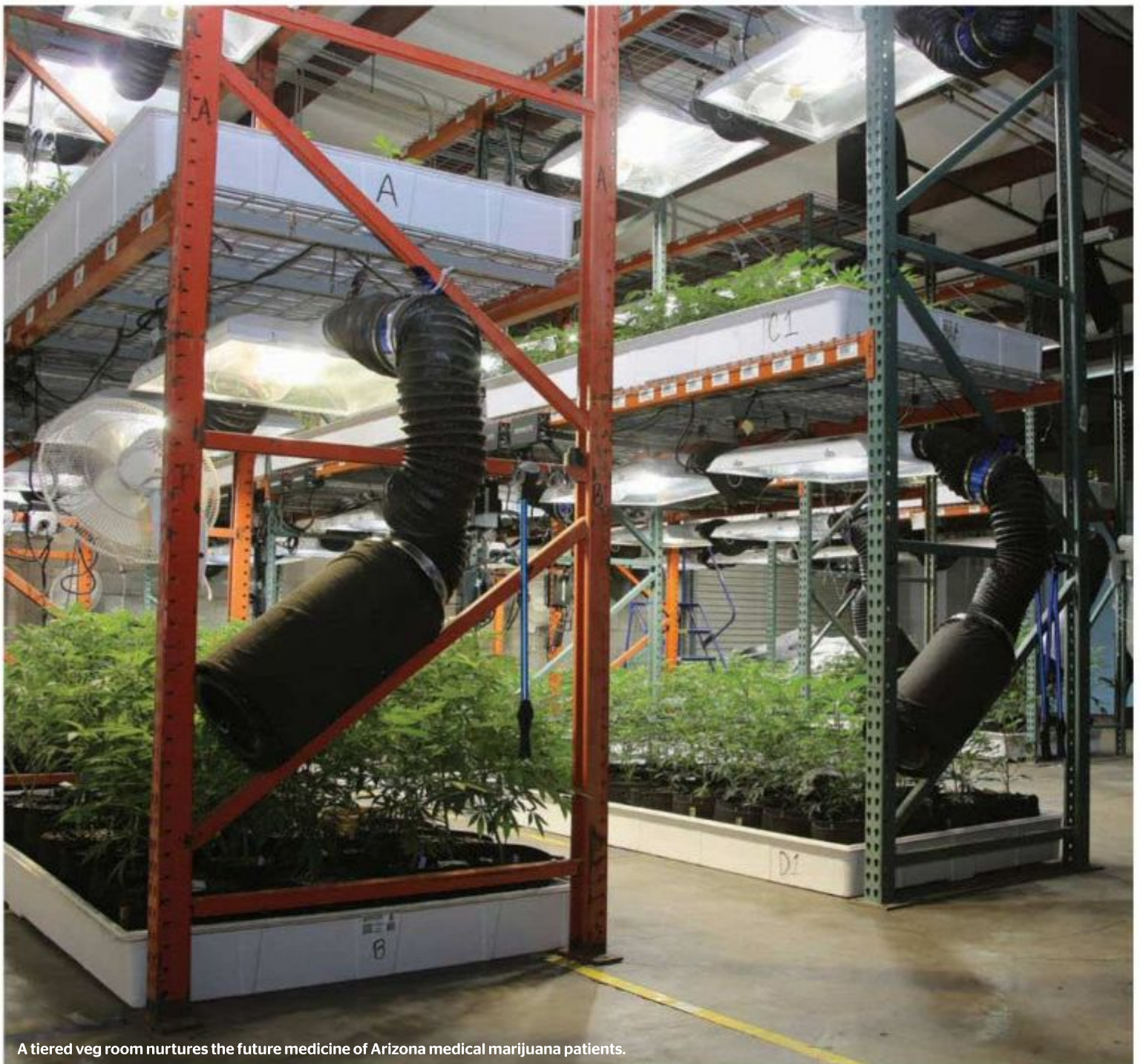
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A tiered veg room nurtures the future medicine of Arizona medical marijuana patients.

necessary for veterans to make the transition from service member to college student to employed graduate. VETS is managed by veterans, spouses, dependents and current service members, and it enabled Pereyda to find direction.

Within six weeks, he enrolled in classes and began pursuing a degree in public policy and management. In time, he was assisting with VETS himself, advising others who were making the transition to civilian life. He also became a powerful advocate for public-health and cannabis-law reform, wholeheartedly committed to ending prohibition “so veterans, and all Americans who need it, can access cannabis without fear,” he says.

A Healing Center Blooms in Tucson

As thousands have discovered, cannabis forms community: Traveling in activist circles leads to connections. Aari Ruben opened the Desert Bloom dispensary in Tucson in 2013 with just three employees, himself included. Three years later, he supervises a staff of 55 who manage the dispensary and work in Desert Bloom’s sizable grow facility, which was built out only a year ago. It encompasses a 15,000-square-foot indoor operation and an acre of outdoor space, which is being converted from a garden to greenhouses in order to take advantage of Tucson’s abundant sun. An extraction lab is turning out concentrates, and an edibles kitchen is in the planning.

At the dispensary, a welcoming atmosphere greets patients. The expansive waiting room includes a picture window; behind it is the Desert Bloom “mother room,” which nurtures the genetics for the 40 strains currently in production. In the transaction room where the medicine is showcased and purchased, a bright, breezy atmosphere prevails, with the wall décor made up of cheery illustrations “so patients can have a lighthearted experience,” Ruben says.

“A lot of people can’t talk about cannabis at work or with colleagues,” he adds. “We’ve tried to create a comfortable space for them.” But if patients are homebound or otherwise unable to visit the dispensary, Desert *continued on page 130*

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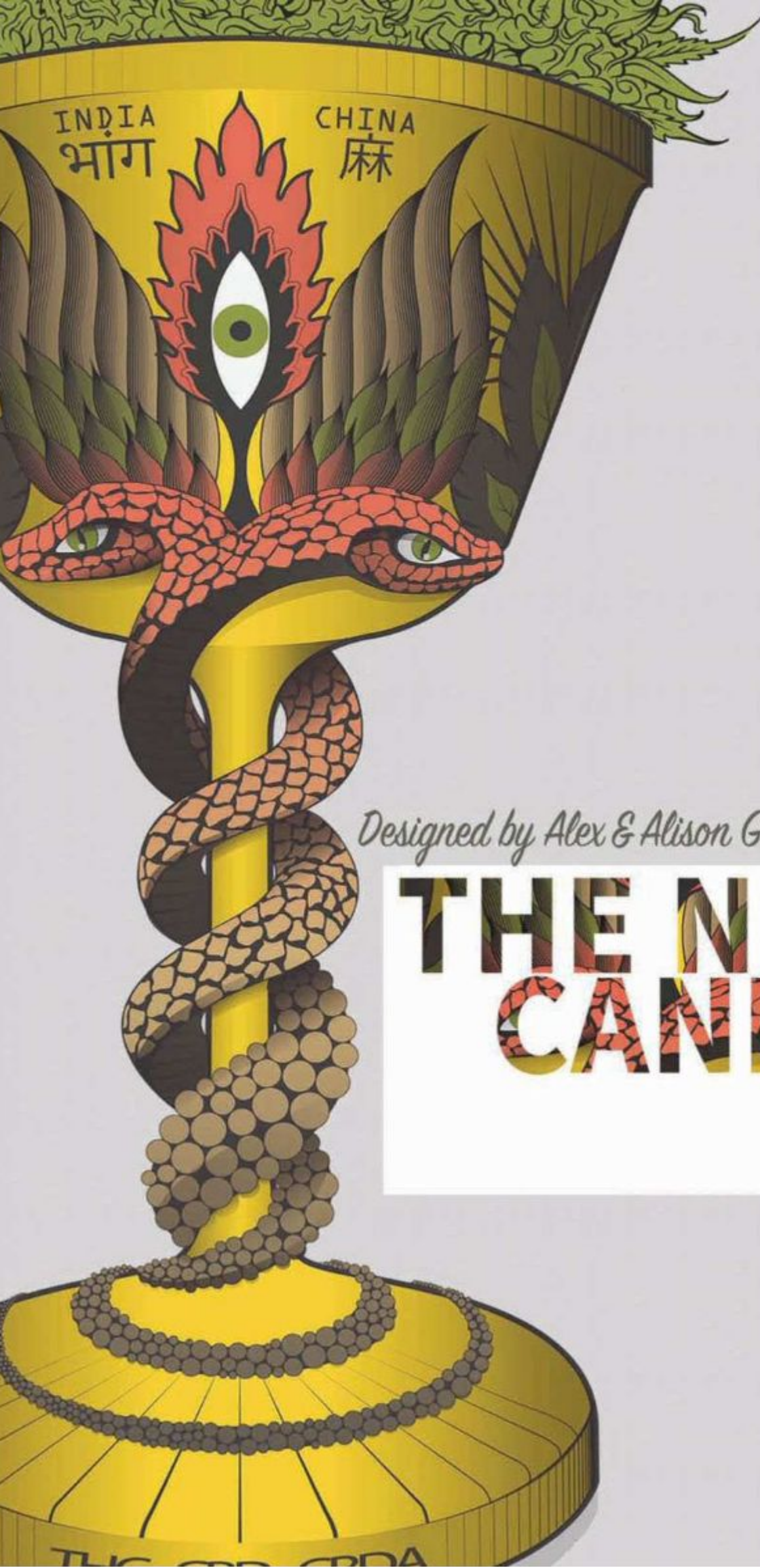
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Trimming up a storm

The High Times Seed Bank Hall of Fame

We're excited to be adding another 10 seed companies to our illustrious list of the world's best pot breeders. Behold the Cannabis Cup winners with prized genetics who are improving the quality of the cannabis gene pool with great and unique strains that stand the test of time. *By Danny Danko and T.H. Caeczar*

Crockett Family Farms

crockettfamilyfarms.com

Since 2008, Crockett has been known for two incredibly popular cultivars that have won many awards over the past few years both for Crockett himself and others using his genetics: We're talking, of course, of the Tangie and Strawberry Banana. These terped-out powerhouses have many people head over heels for Crockett's crazy flavors in both flower and concentrate form. The now-legendary Tangie alone has won some two dozen prizes worldwide!

Growing has been a Crockett family affair for three generations, and their emphasis is always on a superior medicinal and connoisseur-quality end result. Some other varieties that have become very popular are Double Tangie Banana, Sour Banana Sherbet, Clementine and Citrus Sap. This is another seed company to keep your eyes on if you're interested in tropical, fruity aromas and flavors. Be sure to watch for the Banana Pie crosses being released throughout 2017.





Harvest-time at Crockett Family Farms requires hard work and diligence.

Star Dawg



Top Dawg Seeds

[instagram.com/topdawgseeds](https://www.instagram.com/topdawgseeds)

The creator of JJ's Nigerian Haze, Tres Dawg and the ever-popular Star Dawg is Mr. JJNYC himself, the breeder behind Top Dawg Seeds. Since the early 2000s, Top Dawg Seeds has been building its reputation for having access to legit and verified Chemdog-approved strains that just about any grower would love to add to their garden.

JJ's been creating new cultivars with rare, highly-sought-after clones like the Chem D, Chem 91, Nigerian Silk, Legend OG and other rare classics like the Mango Haze, Kali Mist and Strawberry Cough—and we can't neglect to mention Money Mike and the super-popular I-95 crosses he and JJ have been working on. With the soaring demand for Top Dawg Seeds, expect to see these Chem cultivars in more places than ever! If you like those chlorine-bleach-and-Ajax, sour-halitosis-morning-breath, garlicky gas-station terps, you're in for a treat!

"I would like to thank JoeB, PBud, Chemdog, the Weasel, SkunkVA, SI Pete, Money Mike, High Times and everyone in the Chem Family who preserved and shared the Chem lines. Without your contributions, this wouldn't be possible for me. Chem Family Forever!" JJNYC

Schlemons



Swamp Boys Seeds

swampboysseeds.com

Swamp Boys Seeds is a successful collaboration between Cornbread Ricky and Krome, two old friends from Florida. These creative breeders have undeniably made today's cannabis community a better place, chiefly by sharing two legendary strains: Triangle Kush and The White.

Since relocating to California, the Swamp Boys have been consistently discovering new genetics, combining their tried-and-true strains with some of the newer varieties to create innovative and unique standout cultivars. Notable strains attributed to Swamp Boys Seeds (either created or selected) include McFly White Fire #3, Trigerian, Nookies, Blockhead, Mojito, Rogan and Tina Danza. Their current project consists of six crosses with their Georgia Pine male (Killer Queen G-13 x William's Wonder) and six with their Orange Blossom Trail (Old Florida Orange Skunk). Keep your eyes peeled for the new Nigerian crosses that are being released. If you didn't like Haze before, you might change your mind when you see what's coming out soon!

Tina Danza



The Source Genetics

[instagram.com/tharealogkushman](https://www.instagram.com/tharealogkushman)

ThaRealOGKushman of the Source Genetics has been growing and breeding cannabis on the West Coast on and off for over 20 years... one of his earliest breeding projects being a Skunk #1 x Super Skunk cross when he was only 17! Over the years, he's developed a keen eye for keepers and a highly selective strategy for finding incredible breeding lines that he uses to create elite hand-picked seeds.

The Source Genetics debuted in 2013. A year later, they won first place for Best *Indica* at the Cannabis Cup with Cookie Monster, and then another two awards in 2015: third place for Best Hash with Gluekie Monster, and first place for Best *Sativa* (in NorCal!) with the amazing lemon-citrus bomb called Schlemons. 2017 will see the release of a few gems from ThaRealOGKushman's vault, such as the Cookie Monster, which he'll finally be making available to the public. Keep your eyes peeled and pick up a pack of seeds when that happens so you don't miss out on another potential Cup winner!



SWAMP BOYS SEEDS

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Bodhi Seeds

[instagram.com/PlantMoreSeeds](https://www.instagram.com/PlantMoreSeeds)

Bodhi Seeds have been incredibly consistent for many years when it comes to producing high-quality seeds and cultivars. Most breeders can't hold a flame to Bodhi and the level he's at when it comes to selections: Many consider him among the top five breeders to date. Some of the males he's selected for his breeding projects have included the Appalachia (Tres Dawg x Green Crack) and an 88 G-13 x Hash Plant cross that's been producing nothing but superior A-grade genetics with intense effects, incredible aromas and unique flavor profiles.

Some of Bodhi's most popular strains include the Goji OG, Sunshine Daydream, Sunshine #4, Snow Lotus and Red-Eye Jedi, but there are so many more we could name. If you don't have any Bodhi Seeds in your seed vault, mother-plant quiver or personal head-stash grow, you're definitely missing out.



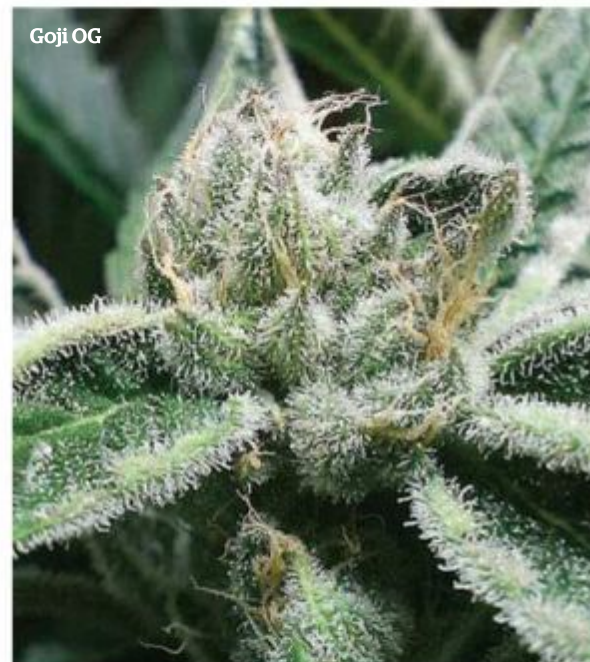
Gage Green Group

gagegreen.org

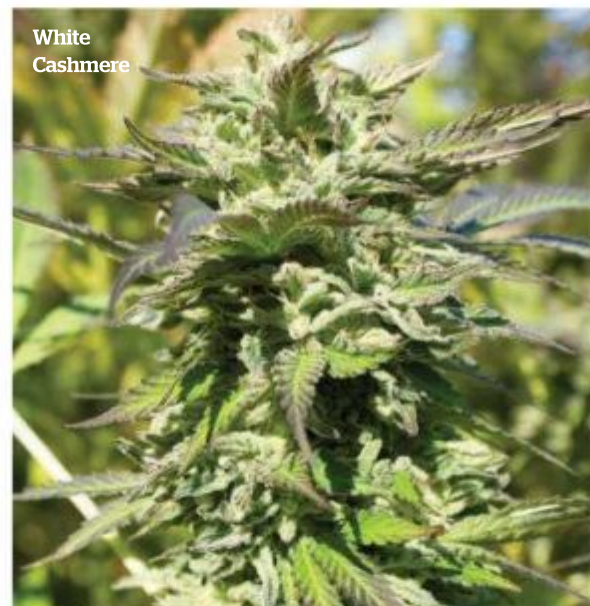
Since their first release with Attitude Seed Bank in 2010, Gage Green Group (GGG) has been slowly building a demand for their gear from growers in the know. Their Mendo Breath boasts the biggest popularity to date, but you can't go wrong with anything they produce, including their incredible recent Cannabis Cup winner Grape Stomper. Founders Keyplay and M4k started the group in a sincere attempt to improve the cannabis gene pool with their natural breeding techniques, including selecting only the finest cultivars to ensure the highest quality.

"We at Gage Green Group will expand our repertoire this year with a new line of championship genetics. Our new explorations will involve many Hazes and distinct landraces in order to diversify the already exceptional expression of Gage Green Genetics. As usual, we'll be incorporating heirloom clones that meet our high standards. We continue to revitalize world-class clones, such as the OGKB, through living soil and beneficial farming practices so that our champions will be pure and unhindered by chemicals. After decades of working with pure, natural methods, our quest for miraculous herb has only just begun!" Gage Green Group

Goji OG



White Cashmere



Aficionado Seeds

aficionadoseeds.com

Mean Gene and Leo Stone started Aficionado Seeds in 2013, primarily as a way of preserving old-school genetics and the old way of doing things in the Emerald Triangle. Prior to that, they spent over 20 years customizing strains for private clients. Their rare genetics, such as the Chemdawg Special Reserve, Cherry Limeade, Nubia and Black Lime Reserve, have taken home over a dozen awards in various competitions thus far, with others sure to follow in the future.

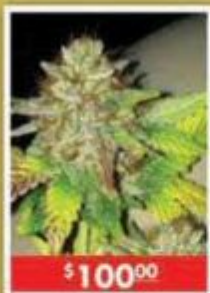
As a premium artisanal brand, their seeds do come with a premium designer price tag attached. The team at Aficionado breed small batches, so everything is ultra-limited-edition and highly exclusive. They also breed specifically for the smokers, because those are the people who ultimately create the demand—not the growers. Their 2016 menu includes the Legend of Mandelbrot Special Memorial Release, dedicated to a revered and recently departed Emerald Triangle breeder. With lots of careful selection and testing going into their work, you can pretty much guarantee that whatever you get from Aficionado Seeds will be flawless.



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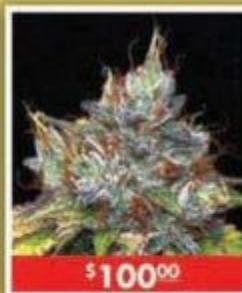
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Cinderella 99

Brothers Grimm Seeds

brothersgrimmseeds.com

This induction has been a long time coming! Originally founded in 1996, Brothers Grimm became known for strong and stable strains. When they shut down in 2002 due to security concerns, the original Cinderella 99 seed stock was quickly depleted and became unavailable until their recent resurrection in 2016. During the dozen or so years in between, the C-99 became more than just popular—it reached cult status as the holy grail of indoor marijuana.

Many attempts were made by other breeders to copycat the strain, but none ever hit the mark. Mr. Soul decided in 2015 to retrieve his famous clone Princess and the cache of seeds he'd saved from Brothers Grimm in 2002. He grew the seeds to select a P94-generation male and then pollinated the Princess exactly as he'd done in 1999 to create the original Cinderella 99 seeds. Some other outstanding strains from Brothers Grimm are the legendary Apollo 11, Killer Queen and their newest sensational creation, Rosetta Stone.

"Brothers Grimm are honored to be inducted! Keep an eye out, for our best is yet to come..."

Mr. Soul and Duke Diamond

3rd Generation Family/Terp Hogz (Dying Breed Seeds)

[instagram.com/_Zkittlez_](https://www.instagram.com/_Zkittlez_)

This collective of farmers from Northern California have decades of experience and the strains to prove it, racking up dozens of awards over the last few years. They made their name with the *indica*-dominant Zkittlez strain, which has won many prizes for flowers and concentrates due to its unique tropical-candy flavor and uplifting buzz.

This crew is also known for their OG Eddy Lepp strain and the inimitable Rosé with the flavor and fragrance of berries and flowers. The trichome production and terpene profiles of these varieties make them ideal for concentrate production. Two new strains called the OZ Kush and Hot Lixz, both released in 2015, also helped propel the 3rd Gen Fam to prominence in the eyes of growers and smokers. If you're on a "terp quest" and phenohunting for some unique, sweet-and-fruity aromas and flavors, you'll find what you're looking for in a pack of beans from this reliable group of breeders.

"We make exotic strains for the exotic grower. With over 20 High Times Cannabis Cup awards since 2012, we have the strains you should be growing!"

—Exotic Genetix

Exotic Genetix

exoticgenetix.com

Exotic Genetix started up in 2008 and have dominated the last decade with some phenomenal strains. Much of their success has come from their Kimbo Kush and Cookies and Cream. If it wasn't for the man known as "Backwood Country Grower" somewhere up in NorCal with the original F1 seed stock of the Alien line (straight from the person who sourced it from Afghanistan), many seed companies wouldn't be where they are today.

With 11 first-place Cannabis Cup wins, seven second-place awards and four third-place wins since 2012, Exotic Genetix show no signs of slowing down anytime soon. With their newest release of The Cube (Starfighter F1 x Starfighter IX2) and several new Cube crosses, expect to see many growers in 2017 pumping out some serious heat!

Dragon Fruit



HIGH TIMES
DOUBLE
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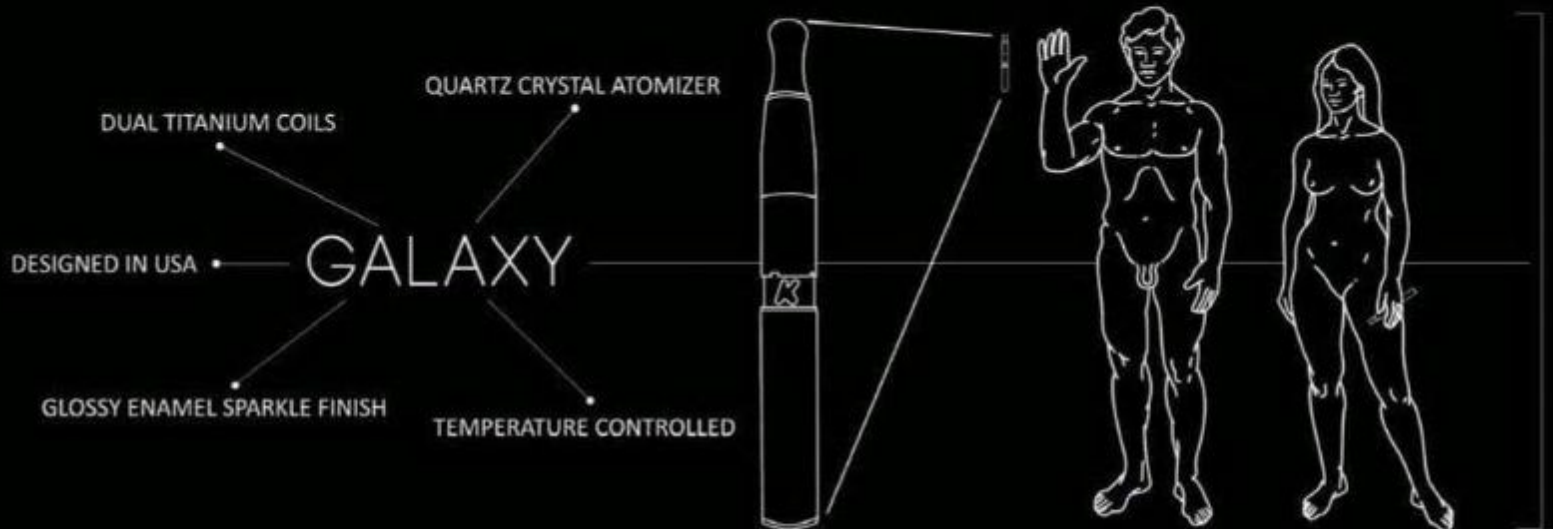
Cookies and Cream



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Reeferman Seeds

Soma Seeds

Green House Seeds

Sagarmatha Seeds

T.H.Seeds (originally CIA/KGB)

Legend/DJ Short

Serious Seeds

Esteemed Pioneers Emeritus

Sacred Seeds/Cultivator's Choice

The Seed Bank

Super Sativa Seed Club (SSSC)

Lowlands Weed/Seed Company

Positronics

2009 Inductees

BC Bud Depot

Big Buddha Seeds

Barney's Farm

Delta 9 Labs

DNA Genetics

Vancouver Island Seed Company

Next Generation Seed Company

Dutch Passion

High Bred Seeds

Subcool Seeds/TGA/The Green Avengers

2012 Inductees

Dr. Greenthumb

Cali Connection

Mandala Seeds

Resin Seeds

Dinafem

Magus Genetics

Chimera Seeds

Mr. Nice Seeds

Homegrown Fantaseeds

Bonguru Beans

2014 Inductees

La Plata Labs

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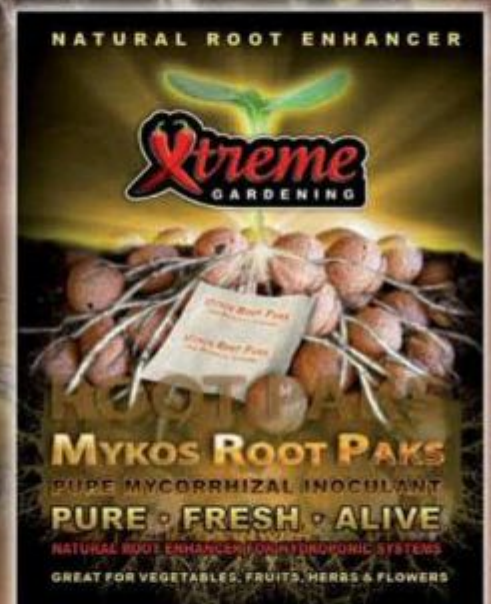
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BLACKOUT

Why the racist legacy of the War on Drugs still persists in the legal marijuana industry—and what we can do to end it.

By Josiah Hesse

In states that have legalized marijuana, those with capital, connections and a clean record typically find themselves welcomed into the booming market—even those clearly seeking to swell their bank accounts off a product they wouldn't have dared to associate with just a few years ago. At the same time, many people of color who have been growing, selling or enjoying marijuana for years find the green door of opportunity slammed in their face.

“Being an entrepreneur is crazy, no matter what,” says Wanda James, co-owner of the Simply Pure dispensary in Denver. “But then you add in cannabis, and you're dealing with no clear-cut rules—it's expensive, it's labor-intensive, and it's legally ridiculous. All that, along with the law-enforcement issues, is why you're not seeing many people of color in the industry.”

For a while, James helmed the only black-owned marijuana business in the city. Though she's proud of being a pioneer, “being the *only* one is a start—but it's not a positive thing,” she points out.

Over the last year, a handful of black entrepreneurs have been entering the industry, but their numbers remain low. A recent report by BuzzFeed calculates that of the 3,200 to 3,600 dispensaries in the United States, less than 1 percent are black-owned. So is the industry's lack of racial diversity indicative of institutional racism, or just a malignant legacy of the War on Drugs?

It's well documented that racial minorities suffer a far greater number of arrests and convictions for marijuana offenses than do whites, despite using cannabis at roughly the same rate. Dubbed the “New Jim Crow” by author Michelle Alexander, this systemic problem has crippled African-American communities both economically and socially, seriously limiting their potential for upward mobility. And this dynamic continues to play out even in the post-legalization world, where, in many cases, minorities are still prosecuted at a vastly disproportionate rate for a substance that white people now make millions growing and selling.

“It’s rare, but there are people of color” in the industry, says Professor Piff, a half-black, half-Korean extract artist in Denver. “But it’s more on the labor side, like trimming or budtending, not on the higher end of extractions or being a growmaster”—or part of the ownership.

“It’s definitely harder” to be a successful black person in the marijuana business, says Ronnie Weir, a Rastafarian who worked his way up from trimming to running his own bubble-hash operation. “When you’re working in an industry that’s predominantly white, you feel pressure and tension in the environment. A lot of these people haven’t been around a lot of black people—so you feel yourself taking on a stigma.”

Weir says that, as rare as it is to find people of color in the industry, it’s even rarer to find people who have spent their whole lives in poor neighborhoods, segregated from the wealth, privilege and security of white communities. Both James and Piff grew up in military families, which afforded them a good education and the opportunity to travel the world, exposing them to a variety of cultures and languages. Similarly, as a teenager, Weir relocated from Central Denver to affluent Boulder, where he was surrounded by white kids who’d been encouraged to dream big and conquer the world since childhood.

And as talented and exceptional as all three are, they could have seen their promising careers nipped in the bud if they’d been busted for weed prior to legalization.

The Ganja Glass Ceiling

“The greatest barrier to minorities working in the industry are restrictions preventing individuals with a criminal record—particularly those involved in the sale or production of marijuana—from participating in the industry,” says Shaleen Title, a founding board member of the Minority Cannabis Business Association. “It is shameful, and sadly ironic, to continue punishing people for an activity that was previously illegal by preventing them from doing that exact same activity now that it’s legal.”

Wanda James has had the rare opportunity of seeing both sides of this divide. She’s now a successful cannabis entrepreneur, but her life was deeply scarred by the War on Pot when her brother was sentenced to 10 years on a marijuana charge in Texas—four years of which were spent picking cotton as an unpaid laborer.

“The judge wanted to teach him a lesson,” James says. “A 17-year-old black kid

picking cotton for free, and marijuana was the excuse—that was a big reason why I got involved in this.”

James and her brother were raised separately. She grew up in a middle-class home, earned a college degree and would later serve on President Obama’s National Finance Committee. Her brother, on the



“The largest obstacle to minorities being owners, investors or directors in the industry is a lack of capital—both financial and political.”

other hand, was raised in a poor section of Dallas.

“As a kid at the University of Colorado, we would sit on the steps of Libby Hall and roll joints,” James recalls. The campus police “would come by and say, ‘Hey, put that away.’ Getting high with my friends that were studying law and medicine—we didn’t feel like we were breaking the law. We never thought about being arrested. When I met my brother and heard his story, it reminded me that there really are two Americas.”

And that economic split between the haves and have-nots didn’t disappear with the advent of legalization.

“The largest obstacle to minorities being owners, investors or directors in the industry is a lack of capital—both financial and political,” Shaleen Title notes. “Most states require tremendous licensing and application fees before a business can even get up and running, let alone the finances required to pay lawyers,

consultants and experts to comply with all the regulations. Most states will justify the high barriers to entry as weeding out those who are not ‘serious’—but it’s really just another example of our pay-to-play crony-capitalist system.”

As Malcolm Gladwell’s book *Blink: The Power of Thinking Without Thinking* details, studies have shown that racist sentiments can exist even in the most progressive-minded people, influencing their behavior in ways they aren’t conscious of. Such unconscious bias could explain why legislators insert provisions banning anyone with a drug felony (including marijuana) from working in the industry. But whatever the reason, and despite the fact that their former “crime” is no longer illegal, those who have been victims of the War on Pot remain branded as criminals.

“These politicians are worried about their constituents thinking they let things run amok with legalization—and losing their job,” says Jesse Horton, chairman of the Minority Cannabis Business Association. “Without knowing a lot, they make easy connections, thinking anyone who is a felon is more likely to go and sell to the illegal market.”

This tendency to see anyone convicted of growing, selling or possessing marijuana before legalization as a permanently branded “criminal” is more than just a law-enforcement problem. It has also skewed the way people perceive the plant itself.

“The fact that minorities have been targeted and jailed for marijuana means that many of them have only seen the detriment to their communities from cannabis,” Horton says. “They haven’t seen the benefits. Black elderly and black churchgoers still have more of a *Reefer Madness* view of cannabis.”

“Cannabis has been used as a way to harass people of color and put them in prison,” says James. “The fear of getting involved in the industry is high. Some don’t believe the cops aren’t going to arrest them.”

Which is a shame, considering the deep love and respect that many people of color have for marijuana.

For Professor Piff, it was the death of his father from colon cancer that led him to research medical cannabis. As a Rastafarian, Weir takes pride in the purity of his bubble hash. And James sees cannabis as a possible economic life raft for her community. So you can be sure they’re all holding themselves to a higher standard.

“We take a tremendous pride in our store,” James says. “This isn’t just another job or another business for us.”

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Unfortunately, not everyone selling cannabis shares their passion for the plant.

“There are a lot of people [in the industry] with no experience with marijuana—they’ve never planted a seed or trimmed a plant—but they get to manage the companies because they have the money,” Weir says.

For example, in an interview with HBO’s *Vice* earlier this year, John Seckman, chief operations officer for LivWell, one of Colorado’s largest marijuana businesses, admitted that he’d never used cannabis, didn’t know anything about it, and had even voted against legalization in the state.

“It’s a product,” Seckman said bluntly, comparing pot to selling cars or any other commodity.

It’s Getting Better

Even if the racial disparities in marijuana arrests remain nearly the same post-legalization (see the sidebar), the last few years have seen a tremendous overall drop in marijuana arrests and prosecutions. Additionally, President Obama has commuted the sentences of an unprecedented number of inmates charged with marijuana crimes, and legalization and other significant criminal-justice reforms have attracted increasingly widespread

“When I met my brother and heard his story, it reminded me that there really are two Americas.”

bipartisan support.

So the future of legalization does look bright, and advocates are also addressing the racial-justice issue. As Jesse Horton points out: “Portland, Oregon, recently voted that some of the city tax from cannabis would be available to communities disproportionately affected by the War on Drugs, as well as expungement programs, job training and education programs for those communities. And Ohio just voted that a certain number of licenses would go to people of color... So some progress has been made, but there needs to be a lot more.”

In California, the passage of Proposition 64 in November means that tens of millions in marijuana-tax dollars will be earmarked each year for “grants to local health departments and community-based nonprofits supporting job placement, mental health treatment, substance use disorder treatment, system navigation

services, legal services to address barriers to reentry [for former convicts], and linkages to medical care for communities disproportionately affected by past federal and state drug policies.” Prop 64 also bans job discrimination in the industry against those with a prior non-violent drug offense.

And, as mentioned earlier, there’s been a small but steady increase in the number of black-owned cannabusinesses nationwide. Last year, Professor Piff landed a job with Viola Extracts, one of the few black-owned marijuana companies in Denver. “I’ve never worked for a black-owned business before,” he says. “I’d always worked for corporate businesses making \$7.25 an hour.”

Wanda James believes we’re seeing the marijuana trade transform from an excuse to persecute minorities into a thriving industry that helps lift them out of poverty.

“More [minorities] are starting to look at this as a career choice,” she says. “And that includes ancillary businesses like black realtors, black security firms, black publishers taking on marijuana ads... I’m hoping to see black-owned banks leading the way in taking cannabis money. We are winning—or rather, I should say, we won. This battle is essentially over; we’re just negotiating the end strategy now.”

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Does Legalization Really Help Minorities?

Legalizing marijuana is an obvious starting point for repairing the racial damage inflicted by the War on Drugs—the idea being that if drug laws were designed to unfairly target people of color, then abolishing those laws will get rid of that racial oppression. Simple, right?

It's certainly true that marijuana arrests have plummeted nationwide over the last few years, which benefits people of all colors. Following Washington, DC's decision to legalize, arrests for marijuana offenses dropped from the thousands to the mere hundreds. Then again, when it comes to citations for public consumption, African-Americans still make up more than 80 percent of those ticketed in DC.

Meanwhile, across the nation, the disparity in marijuana arrests between blacks and whites remains significant and stubborn despite changes in the law—and in some cases, the situation is actually getting worse. In parts

of Chicago's South and West Side neighborhoods (largely made up of racial minorities), marijuana arrests actually increased following decriminalization, despite arrests falling for the city overall.

Even in a fully legalized state like Colorado, juvenile arrests for marijuana have been rising among blacks and Hispanics. According to a study by the Colorado Department of Public Safety, statewide arrests for marijuana fell by 46 percent between 2012 and 2014—which is great. But a large majority of that drop was in the white community, particularly among minors. The marijuana-arrest rate for white juveniles dropped by 8 percent; at the same time, it rose for Hispanic kids by 29 percent and for black kids by a whopping 58 percent.

But does this mean Colorado police are unfairly targeting children of color for marijuana crimes? "Not necessarily," says Douglas Schepman of the

Denver Police Media Relations Unit. "An important factor is how a police contact is initiated. These types of contacts can often be complaint-driven, and officers are simply responding to citizen reports without regard to race

or ethnicity. For perspective, the Denver Police Department responds to about 500,000 calls for service each year in neighborhoods throughout the city."

But in her best-selling book *The New Jim Crow*, Michelle Alexander argues that the police have targeted minority neighborhoods with drug raids for generations, despite evidence showing there was just as much drug activity in white neighborhoods.

"From the outset," Alexander writes, "the drug war could have been waged primarily in overwhelmingly white suburbs or on college campuses. SWAT teams could have rappelled from helicopters in gated suburban

communities and raided the homes of high school lacrosse players known for hosting coke and ecstasy parties after their games... Instead, when police go looking for drugs, they look in the 'hood. Tactics that would be political suicide in an upscale white suburb are not even newsworthy in poor black and brown communities. So long as mass drug arrests are concentrated in impoverished urban areas, police chiefs have little reason to fear a political backlash, no matter how aggressive and warlike the efforts may be."

So whether the problem is cops attempting to fill their arrest quotas with easy targets, or citizens with bigoted views calling 911 on "suspicious"-looking people (à la George Zimmerman), it's undeniable that the racial damage of the War on Drugs extends much further than the laws themselves—and that, while legalizing or decriminalizing marijuana is a helpful and important step, it's hardly the end of this terrible disparity. ✨

Drug laws were designed to unfairly target people of color, so legalization should get rid of that racial oppression. Right?

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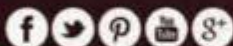
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Concentrated Cannabis

Part I: Extractions 101

By Sean Black

The advancement of cannabis concentrates is growing exponentially, leaving the community flourishing in a new world of potential. Join us in exploring what the future of the concentrate world holds. *Story by Sean Black, photos by Ry Prichard*

Cannabis concentrates have been used throughout human history. Their current meteoric rise in popularity is due, in large part, to modern technology and the ingenuity of cannabis consumers, which have jointly ushered us into the golden age of concentrates. As one Michigan dispensary owner observes, “Concentrates have taken over the cannabis community.” According to Rhory Gould of the Arborside dispensary in Ann Arbor: “Concentrated cannabis can generate up to 40 percent of our sales in the form of wax, oil, hashish, kief, e-pens and edibles made with concentrates.”

Those are the facts. But exactly how and why this happened merits examination—and, most importantly, so does the question of what this means for the future of cannabis. Exploring the most popular types of concentrates, how they’re made, and the history of concentrating cannabis can provide a better understanding of the current market and where it’s headed.

A Brief History of Cannabis Concentrates

Concentrates have been around for thousands of years, in several different forms. Cannabis first appeared in China around 6000 BCE as a food and textile source. Its use as a concentrate made its first appearance around 1500 BCE as bhang: cannabis ground into a concentrated paste, then mixed with herbs and either ghee or milk, or left as a chewy ball and eaten. Somewhere around the 12th century CE in the Middle East, hashish—dark, malleable and resinous chunks of concentrated cannabis—became wildly popular. Hashish made its way along the trading routes through Asia and eventually Europe, becoming a highly coveted global commodity.

In the United States, concentrated cannabis appears in the mid- to late 19th century in the form of “marihuana” tinctures. These alcohol and ethanol extracts mixed with other herbs were sold as a cure-all for toothaches, impotency, typhoid fever,

baldness and just about anything else you can imagine. Whether they made their way to the public via doctors or were peddled by hawkers and “snake-oil” salesmen, people knew that cannabis was a medicine, even if they didn’t understand the science behind it yet. Indeed, it wasn’t until the 20th century that cannabis began to be demonized through government propaganda and appeals to racism, becoming federally illegal in 1937 as a result of Harry Anslinger’s anti-pot campaign and the subsequent Marihuana Tax Act.

Hashish became popular in the US during the 1960s and ’70s, mostly due to

the hippie counterculture. Jack Kerouac published *On the Road* in 1957, inspiring a generation to leave home and embark on a journey of self-discovery. This led, in turn, to what became known as the Hippie Trail: a popular route from Europe to Kathmandu through Turkey, Pakistan, Afghanistan, Iran, India and Nepal. Adventurous American tourists discovered a hashish mecca as they followed the trail through the different regions, each with its own distinctive strains developed over the ages. They brought back “new” landrace genetics in the form of seeds as well as high-quality import hash, creating a willing and eager marketplace in the

United States. Combine this with the hippie culture of antiestablishment politics, free love and expanded consciousness, and the result was a love affair with cannabis. (Not coincidentally, *High Times* and its smuggler-founder, Tom Forçade, who started the magazine in 1974, played a role in fostering this interest in the concentrated herb.)

A Legal Cannabis Marketplace

The 1970s and ’80s saw vast amounts of cannabis grown stateside for the first time, as farmers and smaller growers switched over to a more popular cash crop. Western cultivators embraced these ancient genetics and began to develop the highest-quality cannabis ever seen. The dissemination of cultivation discoveries and techniques and new extraction methods was mainly relegated to underground newspapers and books until the 1990s, when online forums, grower groups and chat rooms emerged.

Then, in 1996, California passed Proposition 215, creating a safer, semi-legal framework under which cannabis could be grown. A newly legal marketplace gave concentrates a platform to be displayed and sold, albeit slowly at first. Growers with vast amounts of after-market material left over, such as trim and lower-branch buds not fit for sale, suddenly found great value in these for creating extracts. Better yet, with the amount of cannabis now being grown, there were also plenty of high-grade buds to extract with newer and more promising methods.

Non-Solvent vs. Solvent Extraction

Both dry-sieving and water extraction are non-solvent extraction processes. Extracting water hash is gentler and more selective, resulting in a more refined concentrate than the original hash from overseas. Import hash was made in places like Morocco and Lebanon by dry-sieving: beating the plants against a surface (such as a silkscreen), then collecting the trichome droppings and pressing them into slabs.

Both water extraction and dry-sieving collect the coveted resin glands, but the older method also collected pistils and other bits of plant matter and foreign material that diluted the potency (kief typically has from 35 to 50 percent THC, as compared to water hash, which usually ranges from 50 to 70 percent THC). As a result, water hash—once a concentrate that only growers or those higher in the food chain had access to—soon became a popular and sought-after product.



Up until 2009, mostly water hash (or bubble hash, as it came to be known) and various kief products could be found on dispensary shelves in the US. Some concentrates made with solvents were available, but most were subpar and stayed fairly unnoticed. It wasn't until 2010, when the first US Cannabis Cup was held in San Francisco, that these newer types of concentrates first appeared in a Cup competition, thereby introducing "dab" culture to a broader audience.

Butane honey oil (BHO) and alcohol-derived oils joined the more traditional forms of extracts and blew open the public's perception of what concentrates could be (solvent-extracted hash generally hovers around 80 percent THC, but some highly refined oils can reach upwards of 98 percent). Previously, behind the scenes, some growers were making head-stash oil with solvents like butane or alcohol—but with lower yields and the lack of a convenient means to smoke it, it remained mainly the stuff of legend for the larger cannabis community.

In particular, the highly refined BHO and alcohol oils became popular due to their higher-THC content and strength. The only problem was how to smoke it: No matter what form BHO takes—oil, moonrock, wax or budder—it becomes a runny liquid when heated, clogging screens and pipes and rendering traditional smoking methods useless.

Hot-knifing on a stove, dropping onto hoo-kah coals, or just adulterating joints and bowls were inefficient means of consuming such a high-quality product.



Cue the Nail

Late in 2009, some ingenious tokers began rigging bongs with a small metallic plate affixed to an arm that, after being heated, swung down below an inverted, bell-shaped intake bowl. Oil was then applied to the hot plate and the vapor sucked in through a water pipe, giving the world its first semblance of an oil rig.

Still, few people had one. It wasn't until the end of 2010 that swing arms had been replaced by glass and titanium nails that sat right in the existing stem of a bong. Driven by the popularity of oil, glass rigs were crafted specifically for dabbing, breathing new life into the world of glassblowing. Given this brand-new tool to smoke oil with, and the introduction of a more refined (and cleaner) product to the public, the love affair with concentrates began to boil over and change the cannabis community forever.

The Art of Extraction

The precipitous ascent in the popularity of concentrates has fueled the progress of cannabis extraction. Dabs are basically the extracted and collected cannabinoids of the plant (THC, CBD, etc.) as well as its terpenes, or essential oils. These concentrates are refined and purified enough that a small dab on a hot nail leaves little to no residual plant matter behind (i.e., no ash, as with a joint).

The majority of cannabinoids and terpenes are found in the trichomes, the glandular stalks and bulbous heads that exist on the cannabis plant. Terpenes are the essential oils that give cannabis its different flavors and aromas and help to shape the experience of the high. The terpenes and cannabinoids have different boiling points (i.e., the point at which they turn into a gas). This is why, before processing, it's very

useful to keep the cannabis and its surrounding environment cold, as this will help retain the volatile terpenes, which can easily evaporate even at room temperature. For this reason, many growers immediately freeze their trim or buds right after harvest, giving rise to the term "fresh-frozen" among extract artists and growers.

"Live resin" is the term for another extraction method that involves harvesting the plant and immediately processing it while still "alive" in order to best retain the essential oils before degradation begins. As the rule of thumb for nearly all extraction methods states: Your final product will only be as good as your starting material.

Cannabinoid & Terpenoid Boiling Points

During the purging process, which removes the solvent from the extract, it's important to remember that under vacuum, the boiling points of cannabis's various compounds drop significantly. For example, carophyllene's boiling point is 246°F at standard atmospheric pressure, but when put under full vacuum, it can drop to 109°F, creating a window for removing the solvent while retaining as much of the cannabinoids as possible. However, pesticides and other chemicals can't be removed by purging, nor can they be eliminated by winterizing or distilling. Indeed, all elements and compounds present in the plant—good and bad alike—become concentrated during the extraction process, which is why it's crucial that the source material never be exposed to harmful substances.

Compound	Boiling Point (°F)	Medicinal Properties
THC	315°F	Anti-inflammatory, analgesic, antidepressant
THC-A	220°F	Sedative, antitumor, anti-nausea, antidepressant, anti-epileptic
CBD	356°F	Antipsychotic, anti-inflammatory, anti-oxidant, anti-seizure, chronic-pain relief
CBN	365°F	Analgesic, antispasmodic, anti-insomnia, sedative
CBC	428°F	Antibacterial, anti-inflammatory, anti-anxiety, bone-growth stimulant
Caryophyllene	246°F	Anti-inflammatory, antidepressant
Limonene	349°F	Antidepressant, immunity booster
Myrcene	334°F	Antibiotic, anti-inflammatory, antitumor
Linalool	388°F	Insomnia and chronic-pain relief
Pinene	311°F	Anti-asthmatic, anti-inflammatory, bronchodilator, stimulant
Cineole	349°F	Antibiotic, antiviral, stimulant, increases blood flow

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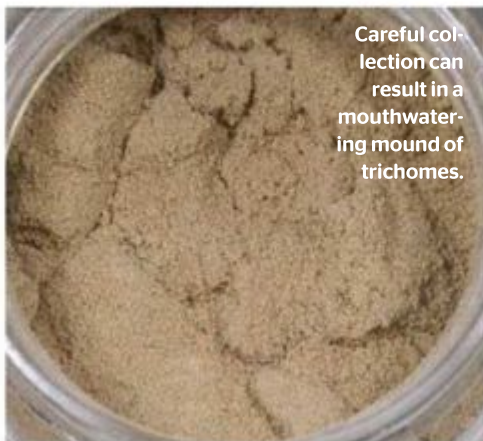
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Non-Solvent Extractions

Closer to the traditional methods of hash-making are non-solvent extractions. These techniques essentially harvest the trichomes via a manual separation process. While not as selective as some solvent extractions, these techniques can provide the least-adulterated end product and will appeal to those people who want to remain as “natural” to the plant as possible. This is because the use of solvents leaves behind residual amounts that need to be purged from the concentrate (more on this in a bit), whereas non-solvent extractions use dry-sieving—or only water—to extract the plant’s resin. Here’s a breakdown of the most common forms of non-solvent hash:



Careful collection can result in a mouthwatering mound of trichomes.

Kief

The easiest method of extraction, kief is made by working cannabis over a screen to filter out the trichomes. Dry ice can be used to freeze the trichome stalks, allowing them to break off more easily. A gentle working over the screen will produce a light-colored kief. Too much agitation will break down the plant matter enough to pass through the screen, darkening and lowering the quality of the final product. Different-size screens are used to separate full trichomes from broken stalks and gland heads.

Storage in a cold environment and sealed package can keep kief light in color with a sandy consistency. Improper packaging can cause oxidation and darken the kief, while warm temperatures will cause the resin to melt out of its casing and become a big clump. If extracted properly, lightly worked kief from fresh material stored in a cool environment can certainly rival the best concentrates in the world in terms of flavor, but less so in potency.

Water Hash/Bubble Hash/Full Melt

Water hash uses a screen and water as a carrier agent to separate the trichomes from the plant matter. Very cold water, full of ice, fills a bucket lined with different-size filter bags whose bottoms consist of

various screens with holes measured in microns. The plant matter is submerged in the freezing liquid and carefully agitated to break off the now-brittle trichomes. These pass through the filter screens, with each bag allowing different-size pieces to pass through, resulting in a slurry at the bottom of each one containing full trichomes, broken stalks and gland heads. Hand-stirring the cannabis with a wooden spoon is gentler (and thus better) than using a mechanical mixer or automatic “washing machine,” resulting in a higher grade of concentrate. Even the shape of the ice cubes will affect how roughly the plant material is treated.

Carefully breaking up the collected mass



High grade concentrates liquefy when heated, making it difficult to smoke via traditional methods.

of trichomes to remove the water without losing the coveted terpenoids and essential oils takes a sharp eye and can make all the difference. Microplaning and sifting are ways to gently separate and remove water using sieves, spoons and rasps without damaging the whole trichomes, thereby retaining as much of their essential oils as possible. “Water hash” refers to the process by which the concentrates are made, while “bubble hash” and “full melt” refer to the end product. Bubble hash is water hash that bubbles when smoked due to its high oil content; full melt is slightly more refined, melting away without any plant residuals left in the bowl (or on the nail) when smoked.

Rosin

Rosin technology is the latest evolution in non-solvent hash-making. To extract “rosin” from cannabis, pressure and a slight amount of heat are used to expel resin from the trichome glands. Here, cannabis is put into a filter pouch and then placed onto a slightly warmed press that squeezes out the extract. Higher temperatures (180°F to 330°F) and more pressure can result in higher yields but can also degrade the final product. The more heat that’s applied, the more terpenes become gas and escape. The starting material

also plays a huge role, as a good kief or water hash can result in higher-quality rosin than can be obtained from flowers, delivering a more potent, dabbable concentrate. Rosin can be produced quickly, safely and on demand, making it a viable alternative for people who want to enjoy dabs but don’t have access to the professionally produced product. Creating rosin can be as simple as placing buds between parchment paper and pressing it out with a hair straightener.

Solvent Extractions

Solvents are liquids in which another substance is dissolved, thus creating a solution. The various solvents have



Stable shatter can retain plenty of terpenes and can last a lifetime if stored properly.

different polarities and water solubility, which can pull different combinations of compounds from the cannabis plant, affecting the extract’s color, consistency and flavor. Some solvents can be flammable and explosive and should be used only by professional extract artists in facilities with the proper equipment. Solvents can strip almost all of the cannabinoids from cannabis while pulling less plant matter than non-solvent methods, resulting in a very clean and pure flavor. Due to this selectivity, solvent extractions can have some of the highest THC and terpene levels. Highly skilled extract artists can further remove terpenes and other cannabinoids to create a nearly 100 percent THC product.

Creating safe, high-quality solvent extractions also depends on proper purging. There’s a wide range of solvents used for extraction, such as butane, pentane, hexane, ethanol and so on. Varying boiling points make some solvents easier to purge from the final product than others. The following list provides a closer look at the three most popular solvents in use today.

Isopropyl Oil/Quick-Wash ISO

Isopropyl alcohol has a high polarity and is water-soluble, making it one of the least-selective solvents. Using well-dried

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and well-cured cannabis can help decrease the amount of chlorophyll and moisture pulled from the material. “ISO oil,” as it’s commonly known, is created by filling a vessel with cannabis, which is then soaked in isopropyl alcohol and lightly shaken. The longer the mixture is shaken and steeped, the more cannabinoids are extracted—but so are chlorophyll, plant alkaloids and waxes. Depending on the starting material and the quality desired, the cannabis is soaked anywhere from a minute to a few hours, after which the solvent is strained into a dish. The remaining solvent is then evaporated from the extract in a vacuum oven by bringing it to its boiling point (just under 181°F) for several hours to a couple of days to ensure that all of it is removed, leaving behind a powerful oil rich in THC.

Butane Honey Oil (BHO)

Already common in the fragrance and food industries, butane extraction spread like wildfire because of the potency and terpene retention achieved, as well as its relative ease of use. N-butane’s polarity matches very well with the compounds that people enjoy in concentrates.

Stuffing a long column with cannabis, wrapping a filter on one end and spraying cans of butane to extract the cannabinoids doesn’t take much knowledge or skill, yet this method can produce tasty golden oil testing at nearly 80 percent THC. However, BHO extractions can be very dangerous, because all “-tane” solvents are highly flammable, and explosive compounds should not be used without the necessary lab facilities and tools.

Properly made BHO is extracted in closed-loop systems that are essentially two vessels with a column packed with cannabis in between. The solvent stays sealed (and under pressure to retain liquid form) as it passes from one vessel through the plant material into the “catch vessel.” Hoses return the solvent back to the first vessel, leaving behind a concentrated slurry awaiting its purge. This system not only captures the solvent for reuse, but also keeps the process safer by preventing it from encountering the open air.

N-butane has a low boiling point of 31°F. Using dry ice to keep the solvent cold and in its liquid form aids in a thorough stripping of the cannabinoids. Extract artists purge the resulting concentrate in a vacuum oven to eliminate the residual solvent, while keeping the temperature low enough to retain those terpenes with low evaporation points. Oftentimes, extractors will mix their butane with up to

20% propane, as the polarity of propane helps to pull a slightly different mix of compounds from the cannabis, leading to a more complete extraction.



Dabs & their Consistencies

Depending on the ratio of cannabinoids and terpenoids, the temperature used (as well as the amount of air left in the final product) determines the consistency of the concentrate.

WAX: Dry and crumbly; first dubbed “earwax” due to the resemblance.

BUDDER: Wetter than wax and often whipped into a creamy, peanut-butter-like texture.

OIL: Runny and viscous, like olive oil.

SUGAR: An appearance like wet sugar, with the THC crystals slowly separating from the terpenes.

SHATTER: A stable and glasslike concentrate that shatters into tiny shards when broken.

SNAP-AND-PULL: Looks like shatter, but stretches like taffy when pulled. Also called “sap.”

CO₂ Oil

In order to harness CO₂ for extraction, it must be kept in a container under high pressure to create a supercritical fluid. This fluid keeps the chamber full like a gas, but with the density of a liquid as it washes over the cannabis. CO₂ extraction units can be expensive, as they are enormous in size in order to deal with the high pressures required. Due to the water solubility of CO₂ and the low temperature used, the wash will produce a cold slurry much like a frosty. Its extremely low boiling point of -56°F makes purging the solvent from the concentrate very easy. A low-heat purge to eliminate the water content results in an extract that frequently has a runnier consistency, sometimes with a slightly orange tinge in color. Due to this final consistency, CO₂ oil is often used for prefilled e-pen cartridges.

The Purge

As mentioned earlier, different boiling points make some solvents easier to purge

than others. Vacuum ovens adjust the temperature as needed while also raising the atmospheric pressure inside, flattening and stretching the concentrate to create more surface area. This allows for the easier off-gassing of the solvent.

The temperature settings not only help the solvent turn to gas, but also keep the material viscous enough for the solvent to escape. Ensuring the complete removal of solvents while retaining the terpenoids can be a delicate balance. Consistencies can also be controlled by different temperatures (anywhere from 80°F to 180°F), the length of the purge, and how much vacuum (suction) is applied. All of these factors control the ratio of cannabinoids and terpenes that remain in the concentrate. Higher temperatures and longer exposure times can create drier concentrates, but also lower terpene counts. Whipping the final product over a low heat can produce a creamy-looking budder or, if dried further, a waxy crumble. Bring that same crumble back up to a higher temperature and it will un-aerate, flatten out, and become a liquid or shatter, depending on the cannabinoid ratios. Many unstable concentrates will nucleate, with the oxidized terpenes (now called terpenoids) eventually separating from the resin.

Too many plant waxes and fats will also affect the final product’s consistency. Since they don’t add anything to the psychoactive effects and can make dabs harsher, these plant waxes and fats can be removed via a simple winterization process. This involves filling a sealable vessel with solvent (primarily isopropyl, methanol or denatured alcohol), to which the concentrate is added and stirred to fully incorporate it. The vessel is then sealed and placed in a freezer overnight. All of the heavier plant waxes, fats and lipids will settle to the bottom, leaving the oil suspended in the alcohol solvent. The liquid is carefully poured off so as to not disturb the wax at the bottom; the concentrate is then returned to the vacuum oven to remove the residual solvent, leaving behind absolutely pure cannabinoids for consumption. Based on the ratios, the final product is either a glasslike shatter or a viscous, honey-like oil.

Looking at how concentrates are made provides a better insight into their fundamental properties and differences. This knowledge will prove beneficial when selecting the types of concentrate you enjoy. Stay tuned for Part 2 of this series, in which we’ll further explore the subject, including non-cannabis additives, terpenes, the isolation of specific cannabinoids, and how best to consume your concentrates. ✨

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BY BILL WEINBERG

BRYAN KRUMM

THE HIGH TIMES INTERVIEW

BRYAN KRUMM, A PSYCHIATRIC NURSE PRACTITIONER IN ALBUQUERQUE, NEW MEXICO, WAS ONE OF THE PETITIONERS WHOSE CALL TO RESCHEDULE CANNABIS WAS OFFICIALLY REJECTED BY THE DRUG ENFORCEMENT ADMINISTRATION IN AUGUST 2016. BUT KRUMM IS FIGHTING ON. A US ARMY VETERAN, HE'S BECOME THE NATION'S FOREMOST VOICE FOR THE USE OF CANNABIS IN TREATING POST-TRAUMATIC STRESS DISORDER. WITH THE UNITED STATES NOW AT WAR IN AFGHANISTAN FOR 15 YEARS, AND IN IRAQ FOR 13, PTSD-RELATED SUICIDES AMONG VETERANS HAVE BECOME A NATIONAL HEALTH CRISIS.

KRUMM FILED HIS PETITION SEVEN YEARS AGO. A SECOND PETITION WAS LATER SUBMITTED BY LINCOLN CHAFEE AND CHRISTINE GREGOIRE, THE THEN-GOVERNORS OF RHODE ISLAND AND WASHINGTON STATE. BOTH WERE TURNED DOWN BY THE DEA IN ITS AUGUST DECISION.

KRUMM SPOKE WITH *HIGH TIMES* ABOUT HOW HIS PETITION DIFFERED FROM THE ONE SUBMITTED BY THE GOVERNORS, HIS CURRENT STRATEGY TO CHANGE THE STATUS OF MEDICAL CANNABIS, AND WHY THIS REMAINS SUCH AN URGENT QUESTION FOR THE UNITED STATES.



Tell us about the idea behind your petition.

I had filed in 2009, and then the governors of Washington and Rhode Island filed in 2011. Unlike them, I didn't ask for cannabis to be placed in Schedule II [under the Controlled Substances Act]. I just said it has to be removed from Schedule I—by legal definition, because it *has* accepted medical use.

I also made an equal-protection argument. Four people are still getting cannabis from the federal IND [Investigational New Drug] program. They get nine to 12 ounces a month, and I argued that other people who need cannabis have an equal-protection claim.

I also argued on the basis of due process. Because of the arbitrary restrictions placed on cannabis and the way the process is set up by the DEA, we've been denied due process of law. It's been set up in a way that it's impossible for us to meet their criteria. They're demanding very strict research be done with large populations and placebo-controlled, double-blind clinical trials. But the DEA has set it up so that these kinds of studies can't be done in the United States.

It's also a states'-rights issue. That's really the crux of my argument: States have been given the right to determine medical practice, not the federal government. That was upheld in *Gonzalez v. Oregon*, the 2006 Supreme Court decision on the assisted-suicide issue. The court ruled that medical practice can only be regulated by the federal government to prevent doctors from abusing their prescription-writing authority to promote drug abuse.

We have 28 states that have accepted the medical use of cannabis, and the District of Columbia. If you include states with CBD-only laws, that brings the number to 40.



Krumm has become a top advocate for veterans.

“The Center for Medicinal Cannabis Research at UC San Diego has done dozens of studies, but they're completely ignored—not even considered by the FDA in these reviews.”

We have numerous professional medical organizations that have recognized the medicinal value of cannabis. Even the NIH [National Institutes of Health] has a patent on cannabis extracts, and in their patent they argue for the therapeutic potential of cannabis. So even the NIH has accepted that cannabis has medicinal use. And the Supreme Court has determined that states have the right to set accepted medical practice.

But your petition was turned down. Where do things stand now?

I wasn't terribly surprised

by that. The DEA did acknowledge that more research has to be done, and they've supposedly eased up on restrictions on research. I actually received a CD in response to a Freedom of Information Act request with the FDA [Food and Drug Administration] that contained two letters—one from NIH to the DEA, and one from the FDA. In this correspondence, both of these agencies discussed how it's impossible under current administrative process to ever say that cannabis has accepted medical use, because the DEA has blocked that kind of research.

But with the new decision, the DEA has agreed to loosen up a little?

Well, they're going to allow more people to apply to grow medical cannabis, rather than it all coming from NIDA [the National Institute on Drug Abuse]. As long as people don't have a history of breaking the law, they'll be able to apply to grow their own, and make it easier for people to do this kind of research.

The new regulations have been published in the Federal Register, which makes them official. The DEA website now references “authorized marijuana manufacturers supplying researchers,” even though they're keeping it under Schedule I.

Now I'm appealing the decision. If I can keep my appeal alive and get the 10th Circuit Court of Appeals [in Denver] to accept my case, I'm going to be asking for two things. First, that the DEA be ordered to remove cannabis from control under the Controlled Substances Act and allow it to be regulated like tobacco and alcohol by the states. The other option is to move cannabis from Schedule I to Schedule III, where Marinol is placed. That's the synthetic form of delta-9 THC, the psychoactive component of cannabis.

So the synthetic form is Schedule III, but natural THC from the plant remains in Schedule I?

Exactly—because the pure THC molecule has been studied in clinical trials. But cannabis contains so many cannabinoids and flavonoids and components that they can't isolate a single strain that's been studied in controlled clinical trials.

If they choose to place it in Schedule III, I say they should order the scientific review to be done with public comment. Right now, the FDA conducts the review within their own department and ignores what all the experts have to



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say. This is such an arbitrary process by the FDA that it needs to be more open. They're ignoring studies indicating that cannabis has therapeutic value. The Center for Medicinal Cannabis Research at UC San Diego has done dozens of studies, but they're completely ignored—not even considered by the FDA in these reviews.

Tell us about your life. How did you come to be involved in this question?

Cannabis is what turned my life around and enabled me to get through school. I failed out of the University of New Mexico in 1983, when I was studying to be an electrical engineer. I failed because I dealt with my PTSD with alcohol. I was kicked out with 23 hours of F's. After I was kicked out, I worked at Sears for a while and then joined the Army—that was before I realized I had PTSD. I was suffering from depression and anxiety. I realized later that came from having an abusive stepfather.

In 1984, I began a two-year enlistment in the Army. I did a lot of growing up there. I gained a lot of self-confidence, realized I could do more with my life by learning to be more responsible for myself. I did eight and a half months at Fort Sill in Oklahoma in training, and then I was stationed at Fort Carson in Colorado.

After that, I went back to school—and almost failed out again, and went back to drinking, which would have had me kicked out permanently. I realized something had to change. When I used cannabis, I was able to focus and tune in on my schoolwork and get things done that I needed to do. And the most important thing is that I didn't drink as much when I was using cannabis.

I was able to talk to my instructor, and he changed my grade from a D to a C so I could stay in school. I switched my major from engineering to psychology—I was trying to figure out what was going on with me.

Later I switched to nursing, and graduated with a BA in nursing in 1993. I made it onto the dean's list and honor roll after I started using cannabis medicinally. I got up to a 2.6 grade-point average even after all those zeros were factored in... *not* an easy task.

I'd started a NORML chapter at UNM in 1987. But after the medical marijuana initiative was passed in California in 1996, I switched to a medical focus. I said, "This makes more sense—let's focus on this." I helped put together the initial draft of the New Mexico medical

cannabis law for State Senator Michael Sanchez in 2000. In 2007, New Mexico's medical cannabis law was passed, incorporating some of the language of the draft I had worked on.

What do you think of the law?

There are parts of it I like. It's not functioning the way it's supposed to, in part due to the federal restrictions. A patient can have two ounces a month, basically—but somebody trying to treat cancer might need up to a pound a month. Animal studies show you need really high doses of cannabinoids to have an anti-tumor effect. That's based on the protocol developed by [Canadian researcher] Rick Simpson using high-potency hash oil.

"When I used cannabis, I was able to focus and tune in on my schoolwork and get things done that I needed to do."

Most states with medical cannabis laws say a physician has to refer patients. Under the language in the draft I worked on, it was a practitioner rather than a physician. Under the definition I use, "practitioner" means anyone who can prescribe controlled substances. This includes not only advanced-practice nurses such as myself, but also dentists and veterinarians. If a veterinarian wanted to prescribe cannabis for a horse, he could do that.

But that language didn't make it into the version that passed?

No. Rhode Island was actually the first state to pass a law with that language, in 2006. They sort of lifted language from the version I helped draft in New Mexico earlier.

When did you become a practitioner?

I went back to school in 2004 after working as a floor nurse and got my master's and became a nurse practitioner. Now I have my own practice, Harmony Psychiatric. I've had it for just over a year. My specialty is treating PTSD using a combination of medical cannabis, dietary supplements, and lifestyle changes that support the endocannabinoid system and help get the cannabis working better for people.

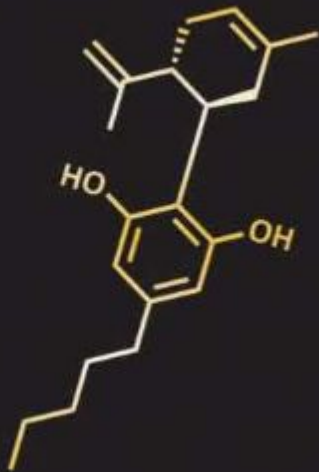


"Cannabis is my passion, my bread, my home. I feel it is my duty to make sure this amazing plant is preserved and enjoyed. I am a smoker, a grower, a breeder, and a strain hunter. For life."

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11 CANNABIS CUP WINS

I also have a clinic at Sage Neuroscience Center here in Albuquerque, where I manage close to a thousand patients. I see them once a year to renew their cards for the medical cannabis program. I've stopped prescribing pharmaceuticals—my only exception is Marinol or dronabinol, the generic variety. You don't want to get on a plane and fly to Texas with your cannabis. So I write Marinol for patients who need to travel, but that's it. A lot of patients I was able to get off pharmaceuticals. The ones who still need pharmaceuticals, I send to other providers in the clinic.

Do you really think cannabis can be released from the schedule system altogether?

That's what I'm calling for—removing it from the schedule system entirely. It should no longer be controlled by the Controlled Substances Act. Let the states decide how to deal with it; that would be the ideal. If the courts aren't willing to do that, I ask that cannabis be put in Schedule III—but only temporarily, pending a review that allows for the public to determine the scientific merits of medicinal cannabis.

Now, they just go to all these anti-marijuana groups like the ONDCP [Office of National Drug Control Policy], SAMHSA [Substance Abuse and Mental Health Services Administration] and NIDA, who tell them marijuana is bad.

That's the first time I've heard you use the word "marijuana" rather than "cannabis."

That's right. They use the term "marijuana"—it's their term, not mine.

There's some suspicion of rescheduling due to fears that it could open the door to "corporate cannabis."

The longer it takes for us to reschedule, the more entrenched the pharmaceutical industry becomes in

medical cannabis, ready to take it over. They're developing synthetic cannabinoids; they're patenting plant-based cannabinoids. There's this Arizona pharmaceutical company [Insys Therapeutics] that dumped over half a million dollars into negative advertising to defeat legalization [in Arizona's November 2016 vote], and they produce the opioid fentanyl, which directly competes with cannabis. And in July, the DEA granted them approval to market a new THC product similar to Marinol.

So we're in a race against time?

I think so. Ultimately, I would like to see cannabis be treated as another dietary supplement—just like if you go to a store and buy vitamins or fish oil or St. John's wort, which is a natural, over-the-counter plant-based antidepressant.

You envision the day that we'll be able to buy medicinal cannabis over the counter?

Yes, I do. Or grow it in your backyard.

Your solution does leave open the possibility of onerous state regulations.

That's true. We can cross that bridge when we come to it. But we just need to get the research done. And now the DEA is going to allow that—or so they say.

We need to be demanding that we have access. Now, we have an arbitrary system where some states allow it and others don't; you can be punished horribly in some places, and in others it's okay. We're determining medical policy by geography rather than allowing people access to the medicine that they need.

Tell us something about your work with veterans.

I believe that cannabis is the only medicine that's effective in treating PTSD. Suicide is *continued on page 130*

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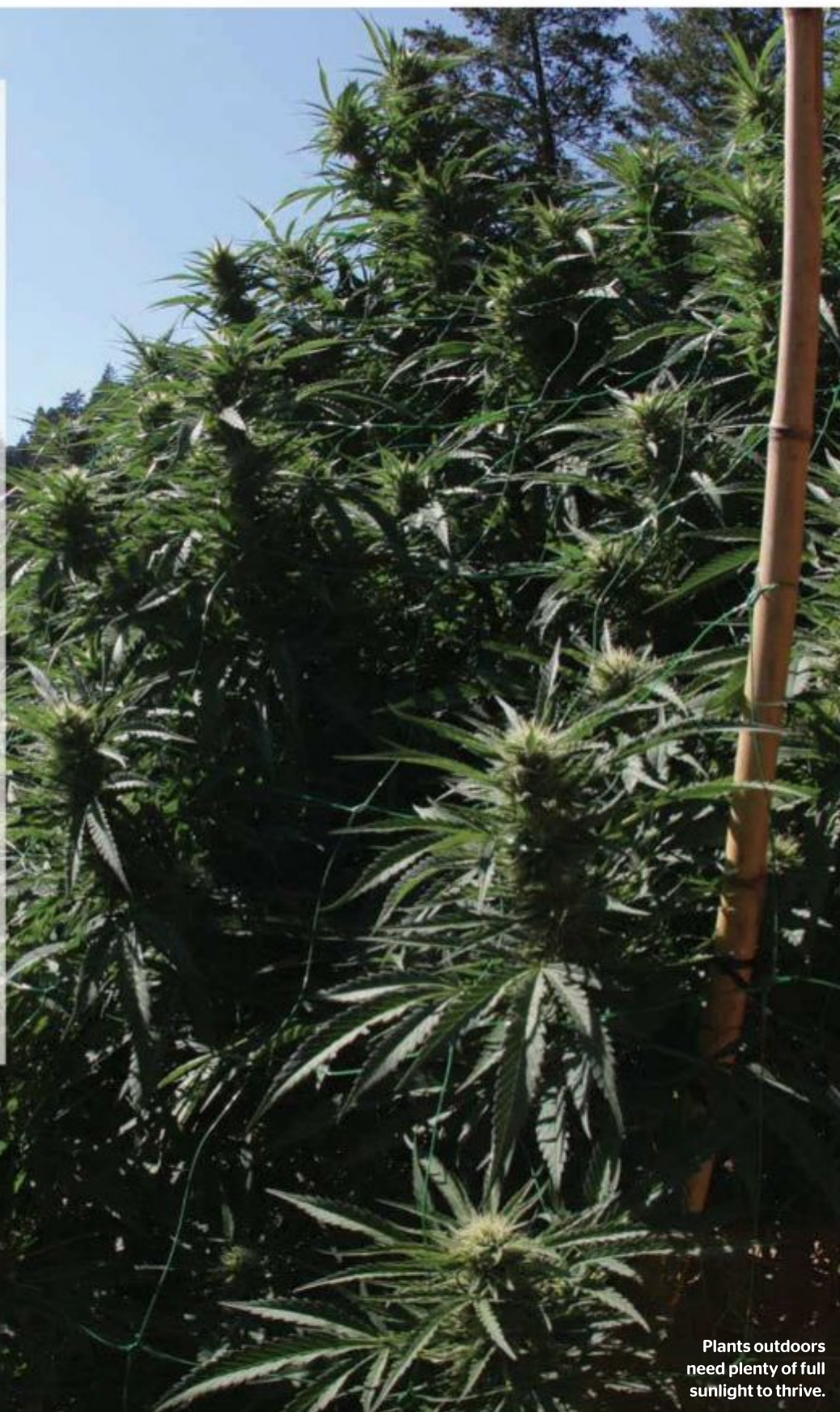
SUBJECT: **Growing Without Lights**

FROM: **Nita K.**

🌿 Hi. How are you doing? I've decided to start growing my own cannabis for the first time. I'm actually surprised that the plants are doing well, but I don't know what to do next. I have them in the sun in front of a window. I live in Bremerton, Washington. We get sun, but not all the time. What do I do now? Please help—I don't want them to die. People say I need to buy lights and put my plants under them, but I'm kinda poor, so I can't afford that. So, will they die?

Dear Nita,

If you can't afford to put your plants under lights, you have a few other options for having them finish properly and harvesting flowers. Depending on the time of year, you can put them outdoors. If it's spring, summer or early fall, find a safe and sunny spot outdoors and put your plants there. If it's late fall or early winter, you need to keep the plants inside and provide as much natural light as possible. A sunny southern-facing window is your best bet. I've seen people grow buds on their windowsill, but the yield is never much, so keep your expectations realistic if that's your chosen route. Good luck!



Plants outdoors need plenty of full sunlight to thrive.

Danko Tip: Always store your cannabis in sealed glass jars and keep them in a cool, dark place.



This OG Kush female is on her way to becoming a motherplant.

SUBJECT: **Flowering Mother**

FROM: **DJ**

🌱 Greetings from the mutts, Daisy and Sally! I have a mother plant under 18 hours of fluorescent lighting, and it looks like she's starting to bud. I see lots of hairs on her. Can that be possible?

Dear DJ,

You may have an auto-flowering plant on your hands. If that's the case, it will simply continue to flower, so you should pick a different plant as your mother. Did you use seeds from a known source, and if so, were they labeled as auto-flowering? This could be one reason why your plant is flowering, even though the light schedule should keep it in the vegetative stage.

It's also possible that your plant is simply showing pre-flowers, in which case it's not really an issue. If the flowering doesn't progress, you should be

fine. But make sure the plant is getting enough light intensity during those 18 hours as well: Plants in low-light conditions can start flowering on their own due to a lack of intense light. If you find that you're not using enough light, add more fluorescents or consider an upgrade to metal halide (MH) lighting.

SUBJECT: **Storage Mold**

FROM: **Pete in Kauai**

🌱 Aloha! My problem is storing my harvest—I live in Hawaii, and the humidity is horrible! I use wide-mouth Mason jars for storage and always seem to get mold on my buds. Any suggestions? Mahalo in advance!

Dear Pete,

If your buds are molding up inside sealed jars, it means you're putting them into the jars too wet. First, you should

make sure the jars seal tightly. To do this, screw the lid on an empty jar as tightly as you can and then dunk it underwater. If it doesn't let any water in or bubbles out, then the jar is tightly sealed. In that case, the problem isn't the humidity, but rather the timing of when you're putting your still-drying buds into the jars.

After harvest, let your branches hang out to dry in a cool, dark place with decent air circulation. Once the branches snap and break instead of bending, trim the individual buds from them and seal them in your jars. They should feel popcorn-dry on the outside before you put them in.

Very quickly, the moisture that is still inside your buds will spread throughout them. When you open the jar of seemingly dry nuggets a couple of hours later, they will feel moist on the outside again. The buds are now curing, and this requires that you open the jars several times a day to release the built-up moisture and replace the air inside with fresh air that will continue to slowly leach the moisture out of your buds. Some call this "burping" the jars.

How often you need to burp the jars depends on how quickly the buds inside are drying out. If they feel dry, leave the jar sealed longer, and if they feel moist, consider leaving the jar open for a little while to allow more moisture to escape.

SUBJECT: **Broken Stem**

FROM: **Veronika W.**

🌱 I have a plant that's been growing on my balcony since the first week of June (got it started a little late, but this is the first year that I've attempted to do this from seed). I live on the third floor, but there are days (like today) when there has been a ridiculous amount of wind, and I'm concerned that the stem may snap because it's bending so much.

I do remember reading that "stressing" the stem and branches is actually good for the plant, as it makes them grow stronger to support it. But I'm curious: How much is too much? Is there any way to tell how much the plant's stem can take before it snaps?

Dear Veronika,

While it's true that some stress on a plant's stem can make it stronger, it's

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THAT DOOSH IS GONNA BE CAMPAIGNING HERE TOMORROW!

I BET IF WE GOT 'EM TO TRY ONE OF OUR FAMOUS "KOZMIK KUSH KOOKIES"...

YAH AND HOW YOU GONNA DO DAT, MAHN?

I GOTTS ME A PLAN!

EAT 'EM UP!



NEXT DAY...

AND WHEN I AM ELECTED... BLAH BLAH SENATOR!

SENATOR CHUNKY! OVER HERE!



CARE TO TASTE ONE OF OUR FRESHLY BAKED ALL-AMERICAN FREEDOM SNACKS?



OH YES! THE ENTREPRENEURIAL SPIRIT IS ALIVE AND WELL HERE!

SO FELLAS, WHAT KINDA COOKIES ARE THESE?

THE GOOD KIND!



I'LL JUST TRY A FEW! MAMMM!

HEY!

I KNOW WHAT THESE TASTE LIKE!

CRUNCH CRUNCH

THEY TASTE LIKE...

SOMETHING IN THESE COOKIES TASTES LIKE... HMMMM...



SO... GETTING BUSTER... THAT WAS PART OF YOUR BIG PLAN?

UHHH... I THINK YOU'VE HAD ENOUGH!



WHAT?!

I'M A \$%#@! U.S. SENATOR! I'LL TELL YOU WHEN I'VE HAD ENUFF! LEMME AT THOSE \$#@%&! COOKIES!

YIKES!



WOW!... DUDE MUST'VE EATEN AT LEAST TWO DOZEN COOKIES!

...HADN'T REALLY PLANNED ON THAT HAPPENING!

MAYBE WE SHOULDN'T BE HERE WHEN THEY ALL KICK IN! KNOW WHUT I MEAN, MAHN?

OH HH YEAH!



LATER...

IN FURTHER POLITICAL NEWS, AFTER GIVING A RAMBLING, INCOHERENT SPEECH TODAY, SEN. CHUNKY HAS SAID HE IS DROPPING OUT OF THE PRESIDENTIAL RACE AND WILL NOW BECOME A FULL-TIME SPOKESMAN FOR SERIOUS MONKEY BIZZNESS...

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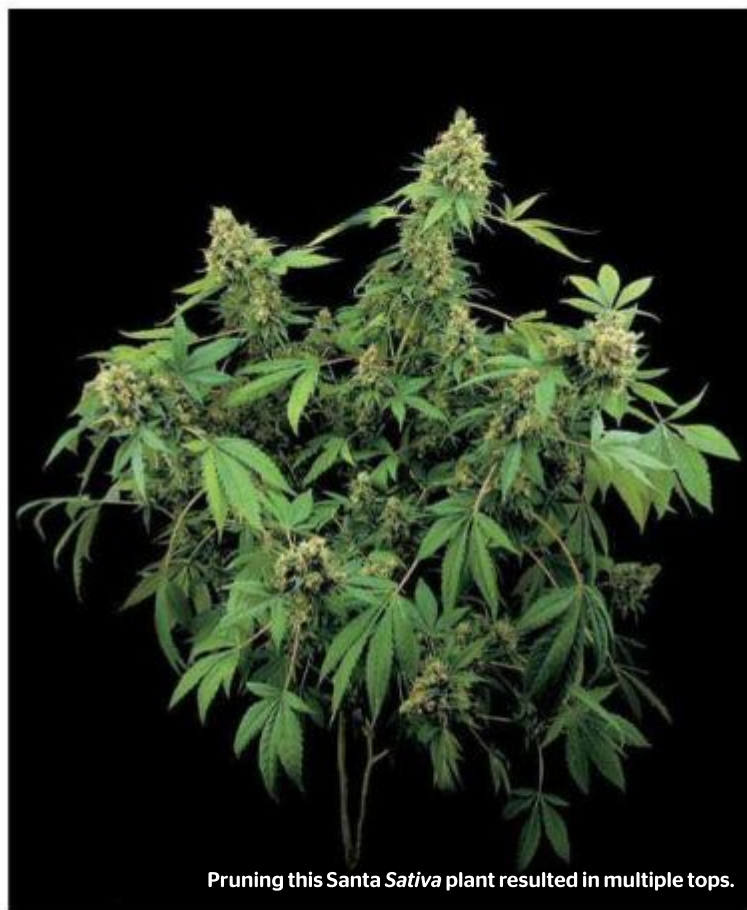
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Danko Tip: If your soil isn't absorbing your nutrient solution, add a drop of natural dishwashing liquid to soften the water.

quite easy to overdo it and wind up with a broken plant. A buddy of mine uses a hockey stick to gently "beat up" the tops of his plants while they're in the vegetative stage. The tops sag for a little while, but they always come back stronger. He never even has to use a trellis or stakes to hold them up.

For you, however, I'd recommend either a trellis system or a well-secured stake to help hold up your plant. Also, you could build a windbreak or something similar to protect the plant from the wind while still allowing it to receive light. Even a small greenhouse-like structure would help enormously in reducing the stress to your plant.



SUBJECT: **When to Prune**

FROM: **O. Ward**

🌱 I'm finding it difficult to know when to prune my plants, what I should be trimming from them, and how I should go about making it a routine, as I've been told to schedule the pruning sessions during both the vegetative and flowering stages to boost the yield and overall size of the ladies. I'm strictly a novice when it comes to growing. Before this I had a single plant under a 250-watt light. I found she was very slow in vegetative growth and the flowering stage, yet she was green and strong.

Any advice you can give me would be a great help, and possibly any images as well, since I have learning difficulties and reading even simple instructions can be somewhat challenging.

Dear O.,

I'm not a big fan of pruning healthy leaves off growing plants, but if it's something you want to try, the best time to prune is

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during the vegetative stage. Pruning during flowering will only reduce your eventual yield, because fan leaves act as factories that fuel the growth of your flowers.

If you still do decide to prune, choose the leaves that you remove wisely: Take off the ones that are shading the growing tops. A nifty way to avoid pruning and yet still allow more light to reach the tops is to tuck the fan leaves under the branches instead of cutting them off entirely.

The exception to this rule is that you should always prune off any yellow or brown leaves, as they will not absorb light but only invite pests and diseases into your garden. And remember, don't leave pruned leaves on the floor of your grow space! I can't tell you how many growrooms I've visited that have dying leaves on branches and dead leaves on the floor. Instead, throw these leaves away or, better yet, compost them. A clean garden is far less likely to develop issues than a dirty one.

SUBJECT: **Light Rails and Yield**

FROM: **Thomas**

🌱 Do light rails have any effect on yield, or would I be better off with two lights in a 4' x 8' tent?

Dear Thomas,

Light rails—tracks installed in the ceiling of a growroom, upon which grow-light reflectors move slowly back and forth over the plants—do have certain advantages. When installed properly, the rails can spread light over a larger space while reducing electrical costs and lowering ambient-heat levels. Another advantage is that they bring light to branches that might not be receiving enough light from a stationary bulb.

However, because the rails move the lighting, overall yield can be reduced. If you employ two lights in your space, your yield will be larger, of course, depending on your ability to handle the extra heat and the intensity of stationary lights. So you'll yield more with two stationary lights versus one light moving on a rail, but you must consider the advantages and drawbacks of either method.

SUBJECT: **Oxygenated Nutrient Solution**

FROM: **E.E.**

🌱 I'm a soil grower, and I have a 20-liter nutrient tank that I change weekly, so my nutes sit in water for a week. Should I add an air pump with air stones for circulation and oxygenation?

Dear E.E.,

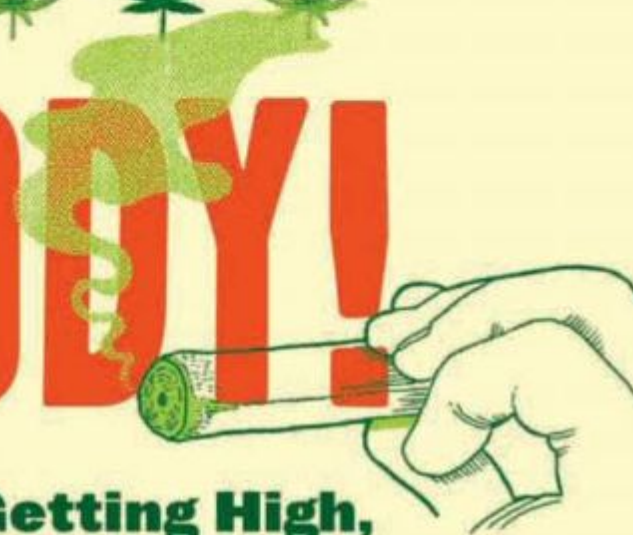
Stagnant water is a bad idea for both hydroponic growers and those who choose to grow in soil or soilless mixes. If the water is sitting for more than 24 hours or so, it should definitely be oxygenated with an air pump and air stones. Keeping your nutrient solution aerated and moving around also keeps the nutrients from settling into the solution or separating as well. The good news is that this isn't an expensive proposition: You can find an air pump and air stones at a pet or aquarium-supply store for under \$20, and the benefits of keeping the solution circulating are worth much more. 🌱

High Times
presents

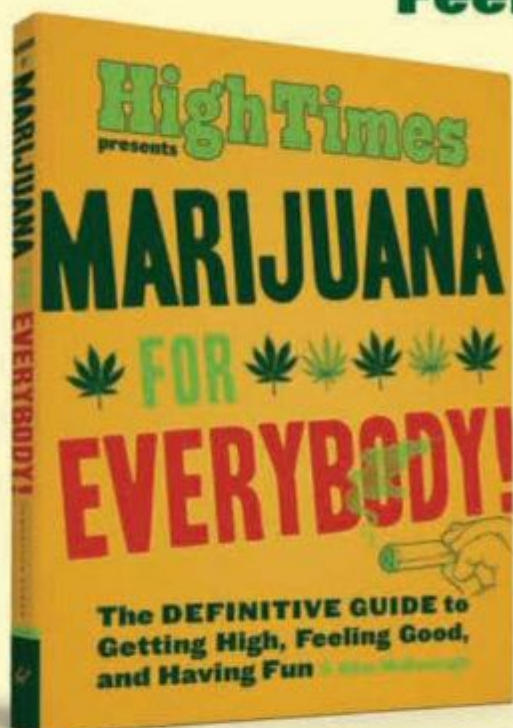
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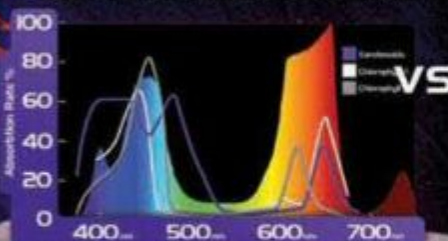
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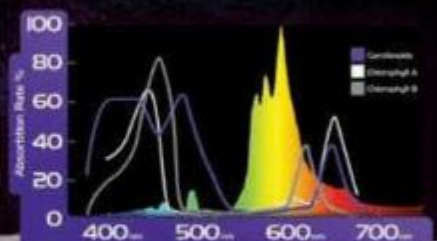
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**Sweet
treat for
cannabis
couples!**

Proper Pot-Chocolate Whiskey Pie *Recipe and photos by Joanna O'Boyle*



Decadent chocolate pie is perfect for Valentine's Day!



Grind up a graham cracker crust.



Top the pie with toasted meringue.

Using medicated chocolate for your Valentine's Day desserts makes dosing easy. Infusing this decadent mousse pie with Seattle's gourmet, low-dose Proper Chocolates and potent cannabutter creates a memorable, beautiful indulgence that enhances a sensual mood.

Ten milligrams is the recommended dose per serving for someone with a low tolerance or who is new to edibles, so you can be flexible with this recipe to individualize the level of THC—for example, use regular butter instead of cannabutter when making the crust for a less potent pie containing about 5 mg THC per slice, or garnish with two Proper Caramelized Whiskey Ganache Chocolates, each containing just 5 mg of THC. As always when using homemade cannabutter, the potency of the finished dish will depend on the THC content of the infused butter, so be cautious and remember to wait at least two hours to feel the full effects.

INGREDIENTS

For the graham-cracker crust:

1¾ cups chocolate graham-cracker crumbs (two sleeves of full crackers)
¼ tsp. kosher salt
¾ cup cannabutter, melted

For the dark-chocolate whiskey ganache:

8 oz bittersweet baking chocolate
8 oz (1 liquid cup) heavy cream
1 pinch kosher salt
2 tbsp. quality whiskey

For the dark-chocolate mousse:

8 oz (1 package) of cream cheese
¼ cup powdered sugar
¾ cup (5 oz) dark chocolate, melted but not hot
1 pinch kosher salt
4 Caramelized Whiskey Ganache Proper Chocolates, roughly chopped (40 mg of THC in the chocolate)

For the marshmallow-meringue topping:

½ cup powdered sugar
4 egg whites
1 pinch kosher salt
1 tsp. vanilla extract
Cream of tartar, as much as needed to thicken meringue
Proper Chocolates, for garnishing each slice

INSTRUCTIONS

For the graham-cracker crust:

In a food processor, crumble the two packages of graham crackers. Pour into a medium bowl. Add a pinch of salt and ¾ cup of melted cannabutter, then mix together until the butter is evenly incorporated with the graham-cracker crumbs. Press the mixture into a 9- to 10-inch pie dish using a tart tamper or the back of a measuring cup to shape a thick, firm crust. Refrigerate the crust while assembling the ganache.

For the dark-chocolate whiskey ganache:

Chop your 5 ounces of dark chocolate to make the incorporation process easier and to help ensure a smooth ganache. Place the chopped chocolate in a heatproof bowl with a pinch of salt. Place the bowl into a shallow-water bath in a saucepan over very low heat, stirring slowly to melt the chocolate without getting it too hot.

In a small saucepan, heat the cup of heavy cream over medium heat until it just boils. Pour the hot cream over the chocolate and let sit for five minutes. Gently whisk the chocolate mixture starting in the middle, until you see the ganache begin to emulsify; then slowly whisk in larger circles, until the ganache is smooth and silky. (You don't want to whisk vigorously, because you don't want to incorporate any air into the mixture.) Stop as soon as there is no visible cream.

Add the 2 tablespoons of whiskey and slowly whisk from the center, working outward in larger circles, to blend into the ganache mixture. (If the ganache breaks, add a bit more cream and gently stir to incorporate.) Pour the ganache onto the chilled crust and spread evenly with a small offset spatula. Set aside a small amount of ganache for drizzling on individual slices when serving. Chill while you make the mousse.

Using precisely dosed
pot chocolate when
baking makes it easy
to determine your
desired THC intake.



For the dark-chocolate mousse:

In a mixer bowl, add the 8 ounces of cream cheese and $\frac{1}{4}$ cup of powdered sugar. Beat on low speed until whipped.

Next, melt your chocolate: Put the 5 ounces of dark chocolate and salt in a heatproof bowl, then put the bowl over a pot that has about 1 inch of simmering water in the bottom to gently melt the chocolate. (Alternatively, you can use a double-boiler or something similar to a Bain Marie.) Stir the chocolate constantly until it has completely melted but is not hot. Pour the melted chocolate into the cream-cheese mixture. Beat on high, until light and fluffy, to incorporate the chocolate.

Next, stir the four chopped Caramelized Whiskey Ganache Proper Chocolates into the whipped mousse to distribute evenly. Spoon the mousse over the chilled ganache layer. Chill while you make the marshmallow meringue.

For the marshmallow meringue:

Place the 4 egg whites into a heatproof mixing bowl. (Make sure the bowl is very clean—any stray fat will keep the meringue from whipping properly.) Add $\frac{1}{4}$ cup of powdered sugar, then whisk the egg whites into stiff peaks. This can take some time and serious effort, but hang in there: The payoff of fluffy, perfect meringue will be totally worth the sore forearms! Whisk until the egg whites have expanded to about four times their original size. (If the egg whites just aren't whipping up into stiff peaks, add a pinch of cream of tartar to stabilize the mixture.) You can also use an electric mixer.

Add 1 teaspoon of vanilla to the meringue mixture. Continue to whisk to incorporate fully. Immediately spoon the marshmallow meringue on top of the chilled pie with an offset spatula to create peaks and valleys.

Toast the marshmallow-meringue layer using the broiler in your oven and a dab torch. To toast the meringue with the broiler, the pie needs to be very close to the oven's top heating element. (I left the door open and moved the pie around to toast evenly.) Finish toasting the peaks with a dab torch for maximum caramelized-meringue crispness. Decorate with the reserved whiskey-ganache drizzle and serve. The pie can be enjoyed immediately or refrigerated for up to three days.

Note: I used cannabutter measuring 1,400 mg of THC per cup, so $\frac{2}{3}$ cup of cannabutter in the pie crust is roughly 933 mg THC, with the four low-dose Proper Chocolates mixed into the mousse layer adding another 20 mg. If the pie is cut into eight slices, you'll have about 119 mg of THC per slice, and garnishing with two Proper Chocolates brings the grand total to 140 mg THC. ✨



Divine dark chocolate marijuana mousse



Spoon the mousse over the chilled ganache layer

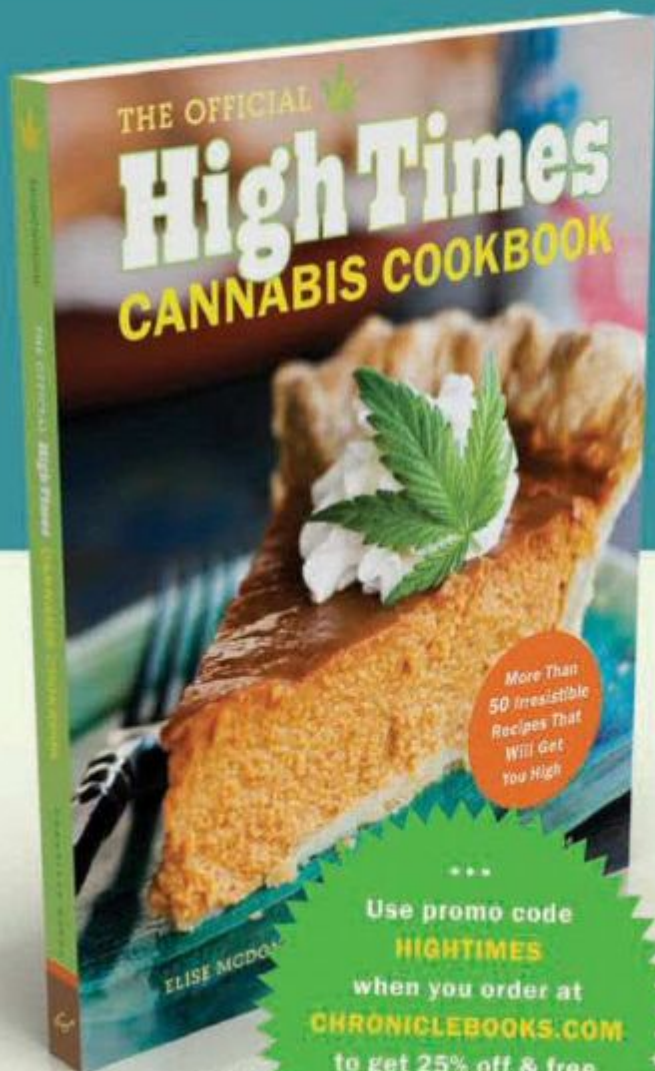


Spread meringue and toast to perfection!

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Stoner dogs, when to toke, female weed busts and mind-reading.

Got a question for Dr. Mitch? Email him at 420research@gmail.com.

What helps people use the plant without any problems?

Lex Greenspoon

Hello Lex,
As they say in comedy, it's all in the timing. An article from my lab titled "Don't Wake and Bake" emphasizes that morning recreational users run into snags more often. There's also data indicating that those who use it only on weekends or only once in any given day report fewer "problems."

Does cannabidiol cure Alzheimer's?

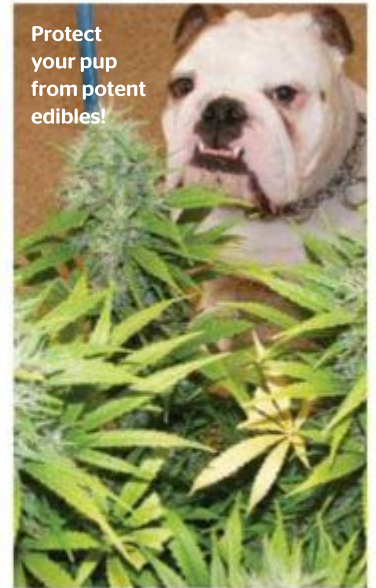
Rashomon Kurosawa

Konnichiwa RK,
Unfortunately, once the symptoms have progressed, it's not a treatment that can help. But in animal research, CBD does slow dementia-related changes. It's cheap and has no side effects, so you can't go wrong trying to use it to prevent the disorder. But send me an e-mail in a few years and see if I remember this answer.

Are women less likely to get arrested for possession than men?

Keith Strip

Hello Keith,
Women do get a bit of preferential treatment in police encounters, particularly if they act in stereotypical "lady-like" ways. But if they behave in any way that's perceived as hostile, or if they happen to be women of color, they seem to get arrested at about the same rate as men. Fewer women use cannabis, which also plays a role.



Do dogs like getting high?

Marmaduke

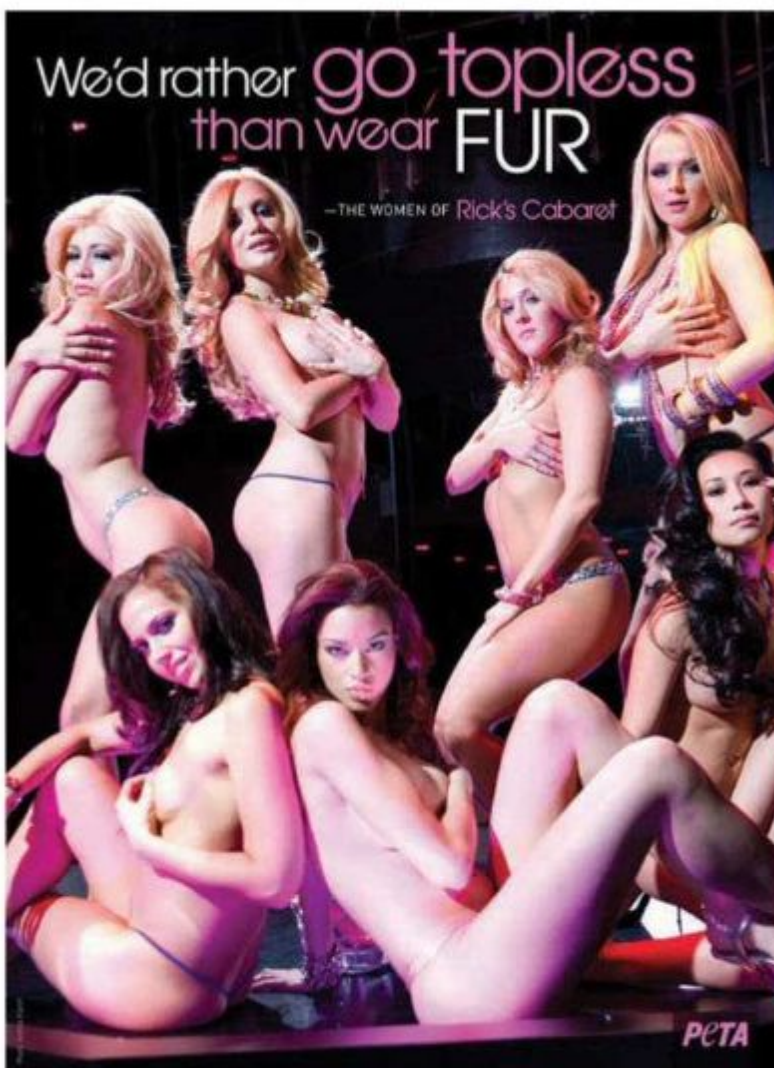
Hi Marmaduke,
Just like people, some probably do and some probably don't. But keep your edibles away from Rover—a dog can easily overdose.

Why do the high-CBD strains help me read minds so well?

Kreskin

Yo Kreskin,
I'm not sure you're reading minds, but a recent experiment suggests that you might be improving your ability to tell someone's mood from their facial expressions. After 16 mg of CBD (but no THC), participants were better at identifying fearful, angry, happy, sad, surprised or disgusted faces. That's about as close to mind-reading as most of us get. 🌿

Dr. Mitch Earleywine, PhD, is the author of Understanding Marijuana and The Parents' Guide to Marijuana.





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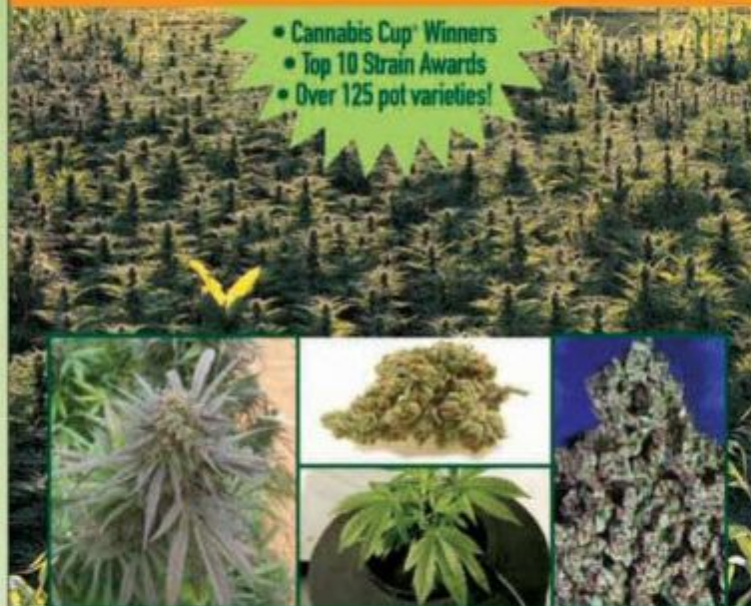
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By Danny Danko, Senior Cultivation Editor
with a foreword by Jorge Cervantes



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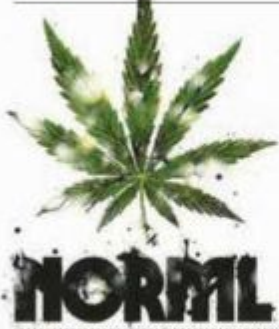


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Erik Altieri is the executive director of NORML. Visit norml.org.

WITH 2016 RELEGATED to the history books, the legalization movement needs to look ahead and learn to navigate a new terrain. For the first time since the initial ground-breaking legalization initiatives were passed by Colorado and Washington in 2012, we are facing a substantial change in the leadership of the federal government.

President Obama's record on the issue of marijuana-law reform was somewhat mixed. During his first term, he substantially increased the number of raids on medical marijuana dispensaries, and his Justice Department issued threats of a crackdown against California if it approved its 2010 legalization measure, Proposition 19. However, the president's tone changed markedly after the 2012 election, when Colorado and Washington finally legalized adult recreational use. At that point, the federal government adopted a firm hands-off approach to states that implemented reforms to their marijuana laws. This allowed legal markets to flourish in Colorado, Washington, Oregon and Alaska (with the latter two voting to legalize in 2014), while empowering the next round of states to join these pioneers on Election Day in 2016.

In short, the breathing room provided by the Obama administration allowed

legalization to secure a foothold and spread. With over half the states in the country adopting some sort of medical marijuana program, and eight states plus the District of Columbia legalizing adult use outright, the cannabis community has realized some of the biggest gains in our history, showing the nation that the legalization of marijuana works not just in theory, but also in practice.

But change breeds uncertainty. With the Trump administration sending mixed signals on how it plans to handle marijuana policy, this uncertainty is warranted. On the campaign trail, Trump stated his desire to treat marijuana, medical in particular, as a states'-rights issue; in many ways, his rhetoric seemed to promise a continuation of Obama's policies. But since Trump's victory, his selections for a number of key cabinet positions have been problematic. Most notably, the nomination of the militantly prohibitionist Senator Jeff Sessions as attorney general has caused consternation among marijuana advocates.

Let's not succumb to fear or dread. Instead, let's be vigilant and stay ready. The future has yet to be written, but we can

Since Trump's victory, his selections for a number of key cabinet positions have been problematic.

prepare for it and utilize all the skills and techniques we've learned over the years not just to uphold our current gains, but to push for new progress.

We must continue the fight, regardless of our reception by the federal government. We need to apply pressure on President Trump and the incoming Republican Congress and encourage them not to intervene

in voter-approved initiatives and state-based reforms addressing our failed Drug War. We need to remind them of one of America's driving principles, federalism, which holds that the states are laboratories of democracy, empowered to adopt policies like legalization without federal incursion. We also need to remind them that supporting these reforms is not just good public policy, but also good politics.

Around 60 percent of Americans now support the legalization of marijuana, and over 80 percent support letting states set their own policies. Any attempts to crack down on legalization or medical marijuana will result in a severe voter backlash.

Even so, we need to mobilize in ways that we never have before. This is a battle we've been fighting for decades, and we're stronger than ever as a movement. The cannabis community is now a force to be reckoned with, and we aren't going away. ✨

FREEDOM FIGHTER

Giving 'em Bell!

Missouri's Blake Bell is showing the way in the Show Me State.

Blake Bell currently serves as the executive director of Greater St. Louis NORML and was volunteer coordinator for New Approach Missouri, the 2016 campaign that sought to legalize medical marijuana in the state. But Bell's passion took him well beyond an advisory role: He personally collected thousands of signatures, served as a notary, coordinated

fundraisers and managed signature-gathering locations, which involved training several hundred volunteers. He also assisted campaign officials, providing evidence in the courts, after a discrepancy in a handful of signatures led to New Approach Missouri being excluded from the November ballot.

"It was devastating to lose by 23 signatures," Blake says. "Not a day goes by that I don't think about it—not for me, but for those involved in



a life-and-death struggle.

Whether it's an epileptic child, a rape survivor suffering from PTSD, a retired football player, a brain-cancer patient or a returning soldier, everyone deserves a chance to use cannabis as their choice of medication."

Most recently, Bell launched Project 22 in order to highlight the 22 veterans who commit suicide in America every day. He's been promoting the project through interviews and traditional social

media and is working with a group of volunteers to create *project-22.org* and a documentary that will follow veterans from Missouri to Colorado, where they'll learn about the medicinal and therapeutic value of cannabis at the First Annual Cannabis Research Conference in Pueblo.

"Our goal is to educate veterans about the safe, nontoxic options available," Blake says. "Many veterans find relief through cannabis and become healthy, happy and productive members of society."

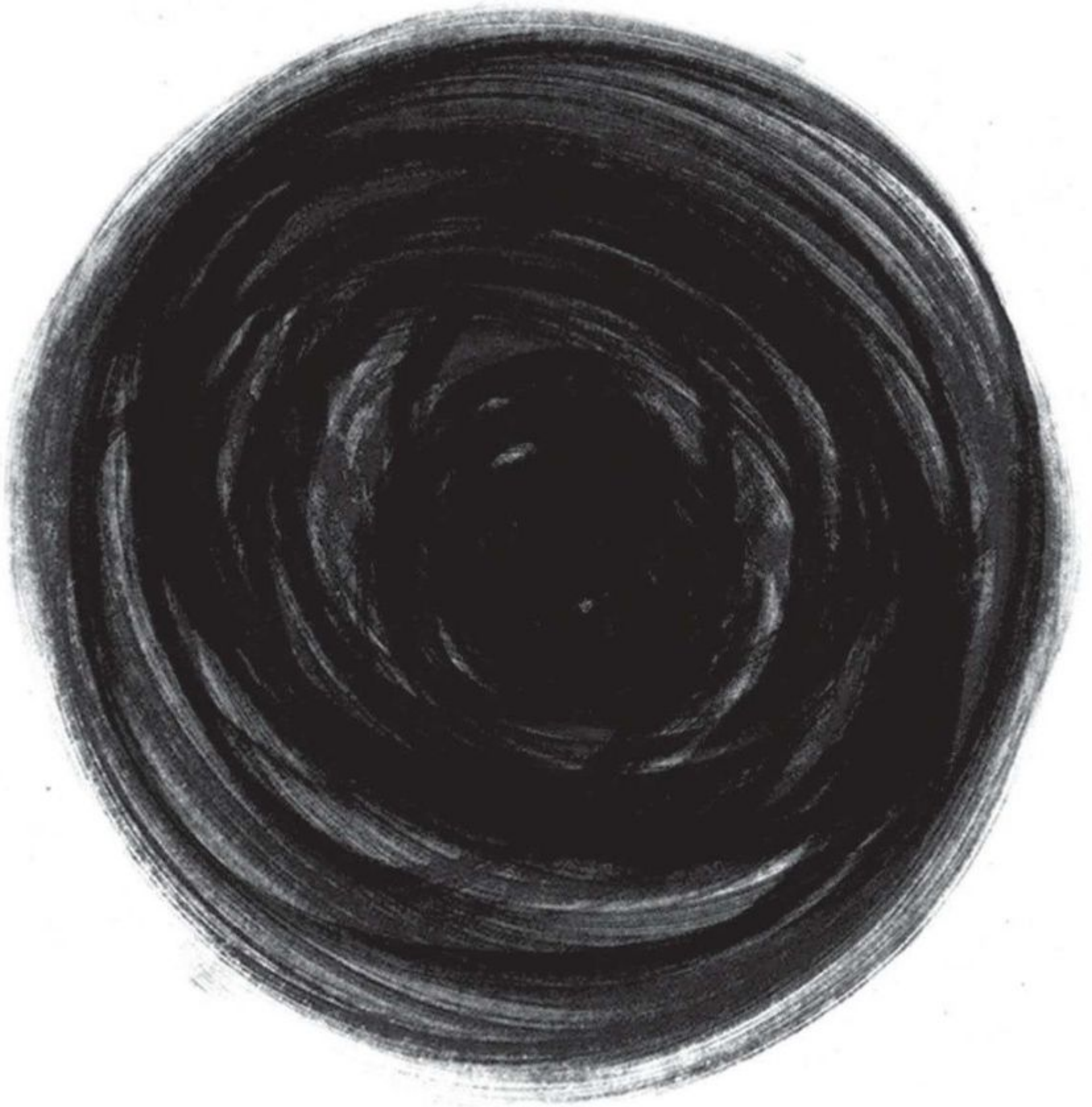
By Kevin Mahmalji, NORML national outreach coordinator

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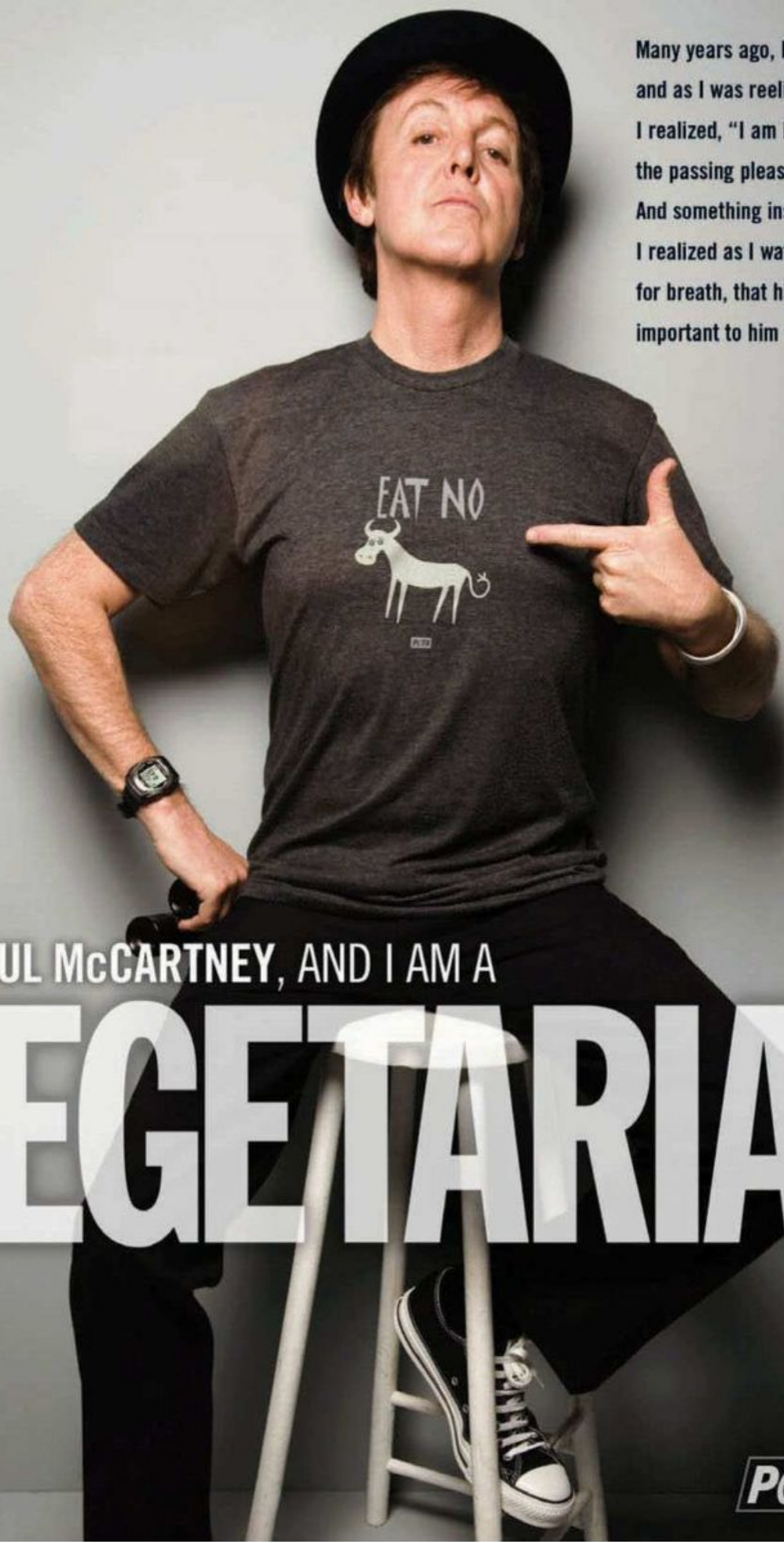
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Many years ago, I was fishing,
and as I was reeling in the poor fish,
I realized, "I am killing him—all for
the passing pleasure it brings me."
And something inside me clicked.
I realized as I watched him fight
for breath, that his life was as
important to him as mine is to me.



I AM PAUL McCARTNEY, AND I AM A

VEGETARIAN

PETA.org



Pereyda can hardly believe that working with pot plants has become his occupation.

Beyond the Battlefield continued from page 64

Bloom provides delivery service.

Ruben has instituted a model of dealing with patients adapted from natural healing methods. To help identify appropriate strains, he's trained the dispensary's staff to pay attention to all of the variables that impact a person's health: diet, exercise habits, past injuries and home life, too.

"We've gotten to know our patients," Ruben says. "And I've learned a lot about cannabis therapeutics."

He was a staunch advocate for adding PTSD to the list of conditions that qualify someone to use cannabis medically in Arizona, part of a bill that was passed in 2014. That's how he and Ricardo Pereyda crossed paths. When the latter inquired about a job, Ruben readily hired him.

"It's coming up on a year that I've been working in the grow," Pereyda says happily. "It's great—every day I wake up, and I'm eager to go to work. I ask myself, 'Is this for real?' I mean, I actually pay taxes to the government for working in a cannabis garden. How cool is that?"

He says that working in the cannabis industry has also allowed him to move beyond the stigma of PTSD. "You have to understand: using cannabis to treat PTSD is a double whammy. Employers have two reasons to discriminate against you."

No such problem in the cannabis industry—in fact, Desert Bloom's master cultivator, Nico Mauceli, says that the veterans on staff have proved to be a valuable asset. "They understand responsibility," Mauceli notes. "They're disciplined, squared-away individuals who have a strong work ethic due to their military experiences. Ricardo has been outstanding."

He's also getting an education. Pereyda knows that, in an industry still laying its foundations, his training at Desert Bloom can only lead to more opportunities.

"Look, I'm really just an apprentice here," he says. "I'm trying to pick up as much knowledge as I possibly can. There are people here who know so much—real experts. I'm just soaking it up. But cannabis has given me new direction, new motivation. I'm glad to be here." 🌿

Bryan Krumm

continued from page 106 the only one of the top 10 leading causes of death in the United States that is increasing in frequency. We're seeing now close to 120 suicides a day in the United States—and 22 of those are veterans. That's 22 veteran suicides every day. Since I filed my petition in 2009, there have been more than a quarter-million suicides in the United States. In my clinical experience, cannabis has proven to be the only medication that can rapidly reduce suicidal thinking for most patients.

Just two or three years ago, we had maybe 100 suicides a day. It's alarming to see the rate that it's increasing at.

What do you think is behind this?

There are socioeconomic factors, stress factors—people are grasping at straws to explain this dramatic increase. But we're not seeing these increases in states with medical cannabis laws to the same extent as in states without.

Personally, I attribute it to overloading our endocannabinoid system. Of the patients I see, 15 to 20 percent are veterans. Some have seen action in Iraq and Afghanistan, and a lot are Vietnam vets. They suffer from uncontrollable anxiety, hyper-arousal—they are hyper-vigilant, paranoid all the time, all the time watching their backs. They have flashbacks and nightmares, sleep disturbances, and can't get their brains to shut off. They have irritability and anger and numbing symptoms where they can't enjoy the things they used to, or isolate themselves and avoid people.

I would ask them, "Have you ever considered using cannabis?" But now more are coming seeking cannabis. I've been able to get many of my patients away from pharmaceuticals. And research also shows a reduction in the use of certain types of pharmaceuticals in states with medical cannabis laws.

And in states that have medical cannabis laws, we've seen a reduction in the rates of suicide. Endocannabinoid dysfunction is key in suicidal behavior. One of the things that contribute to the endocannabinoid system not functioning is diet. Most of our diets are far too high in Omega 6 fatty acids, as opposed to Omega 3 fatty acids. This burns out the endocannabinoid system.

We evolved to have a 1-to-1 ratio of Omega 6 to Omega 3, and now it's 20-to-1. Sunflower and other seed oils that are high in Omega 6 have only come about in the past 100 years. This is something new to the human diet. Olive oil has been around a lot longer, and that's a better oil to go to for healthier fat. Hemp oil has a good balance of Omega 6 and Omega 3, although it's not great to cook with because it burns really easily. Fish oil has massive doses of Omega 3 and helps balance the endocannabinoid system so we can get the cannabis to work better for people. I take two capsules of fish oil every day. I also find I use less cannabis since I've been using Omega 3's—because my endocannabinoid system is functioning better, so the cannabis gives me a better response at lower doses. Just smoking more will burn out your endocannabinoid system even faster.

How do you think your strategy for descheduling will be affected by the recent elections?

I'm kind of terrified by what I see happening, the people Trump is surrounding himself with—from his appointment for attorney general to all his key advisers. [Alabama Senator] Jeff Sessions is so hardcore anti-cannabis in his history—I'm not happy with him being attorney general and ultimately being the one to administer the Controlled Substances Act. It's hard to say which way things are going to go. That's why I'm hoping the courts will keep my petition in place and allow this case to be heard. 🌿

AG&A

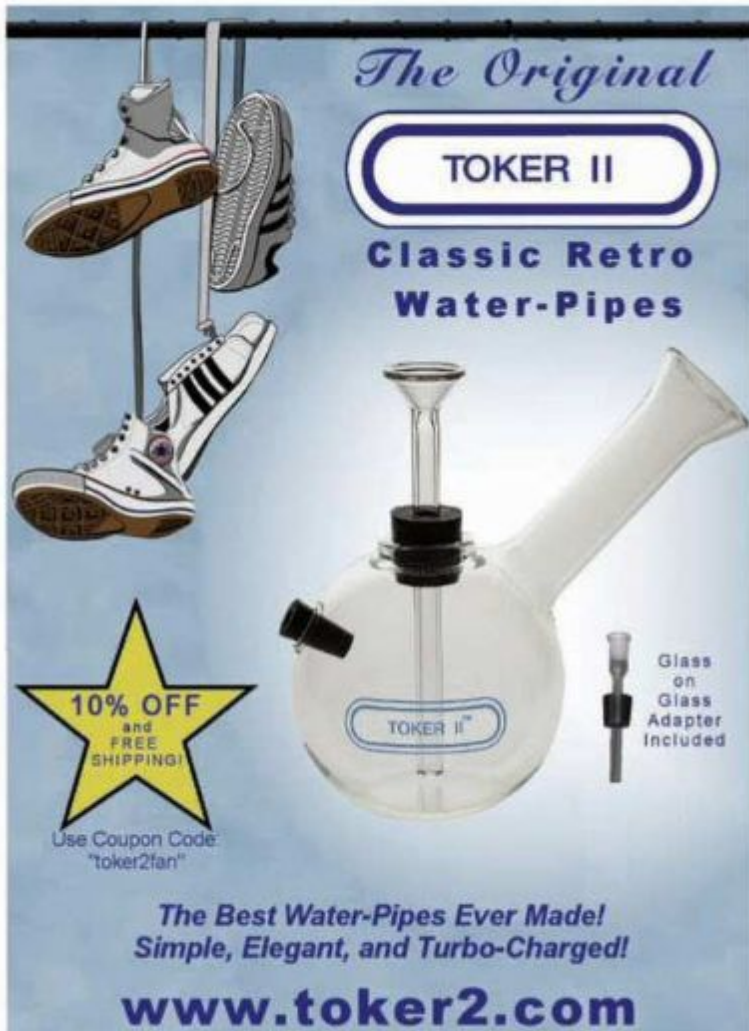
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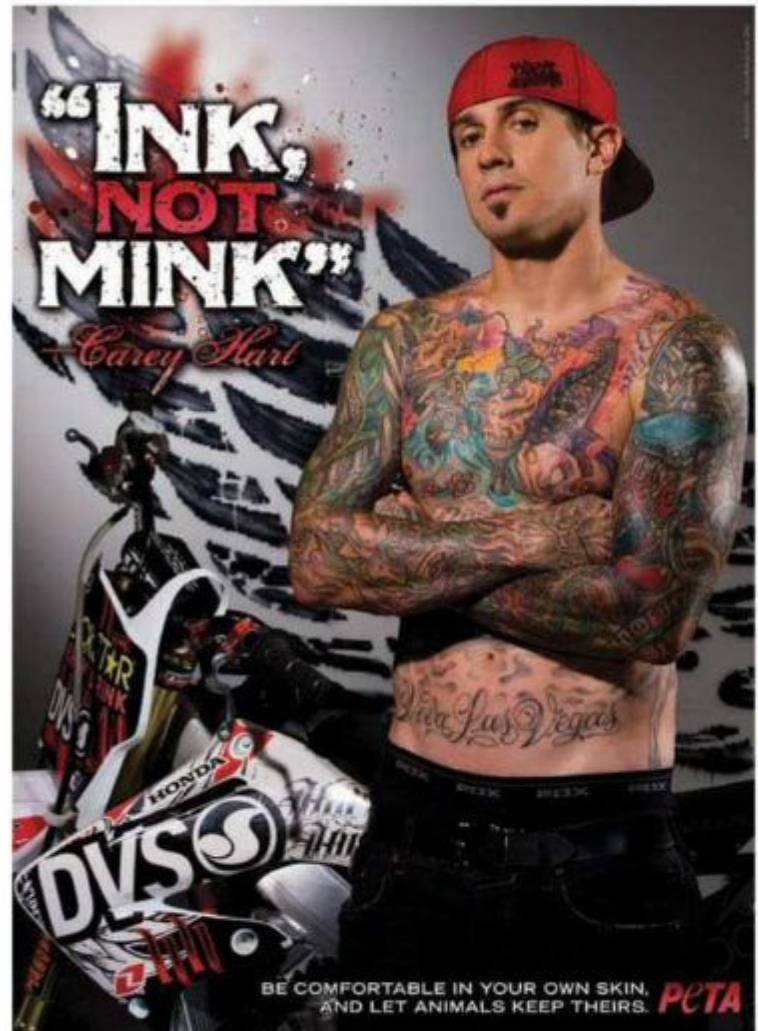
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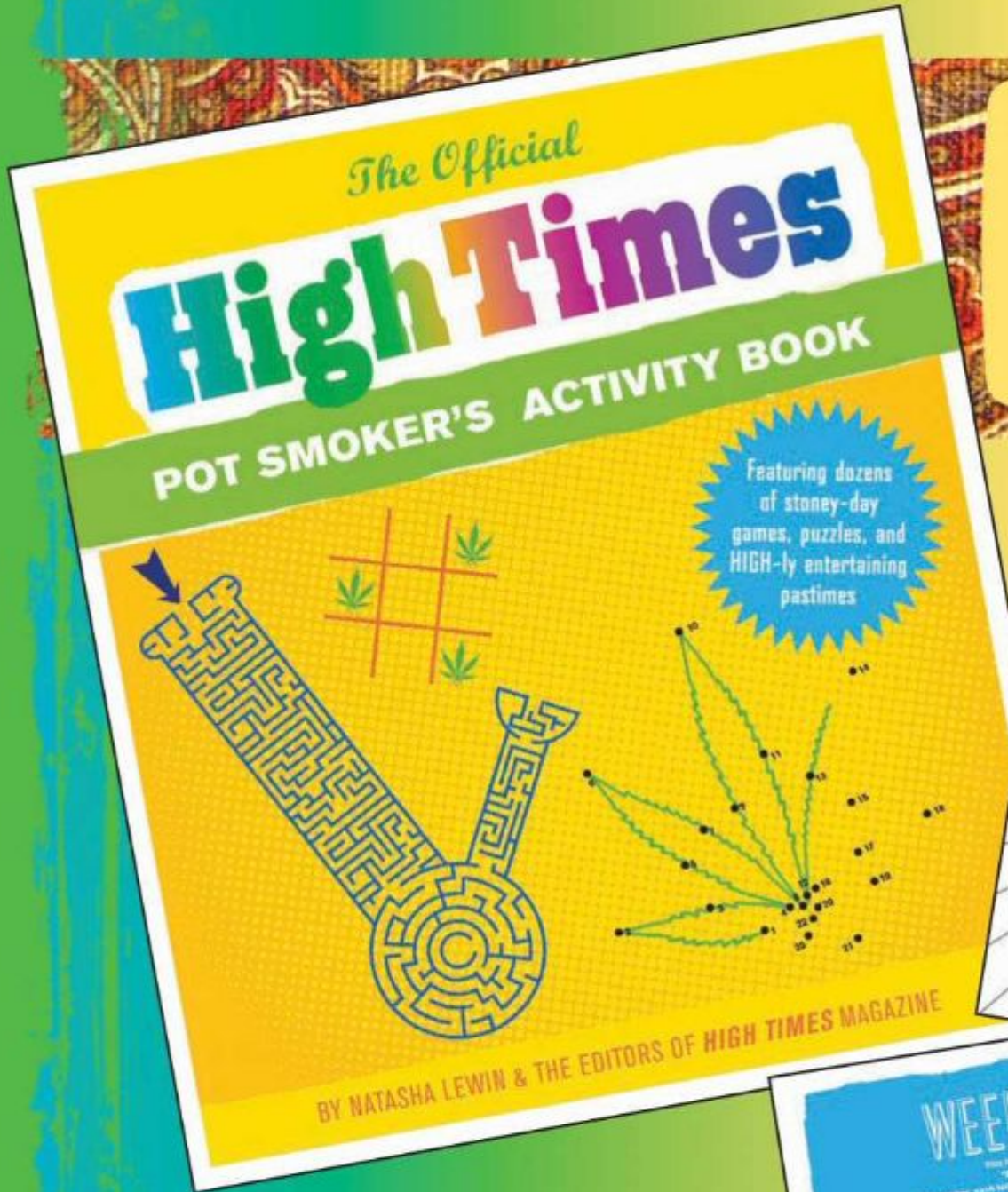


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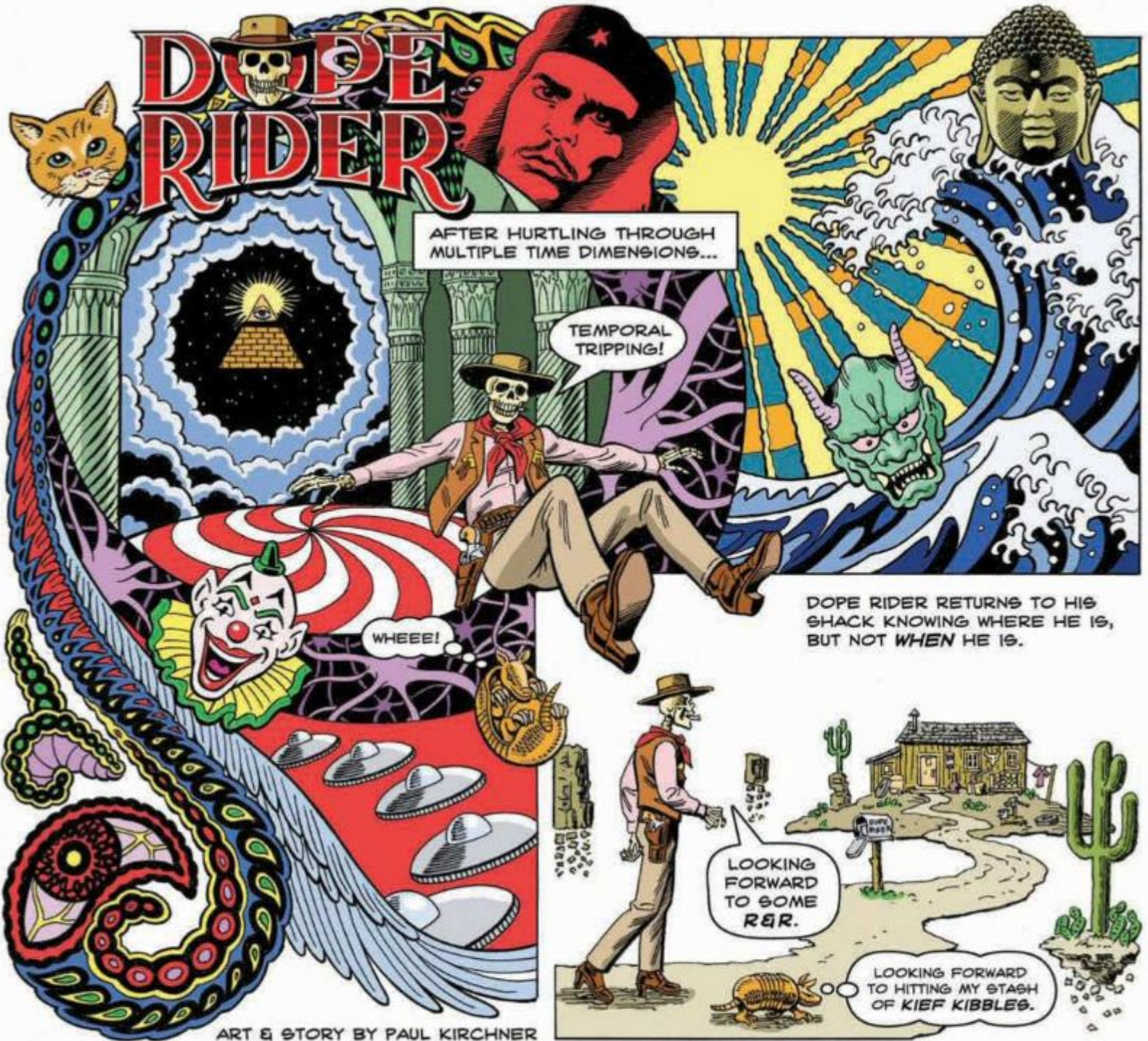
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LOOKING FORWARD TO HITTING MY STASH OF KIEF KIBBLES.

ART & STORY BY PAUL KIRCHNER



HE COULD MEET A DOPE RIDER FROM ANOTHER TIME FRAME...

WHEREVER I GO, THERE I AM.

LONG TIME NO SEE.



...OR SEVERAL OF THEM.

DEAL ME IN, COMPADRES.

HEY, I'LL BET THE FOUR OF US COULD MOVE THAT FRIDGE OUT BACK.

OR MAYBE START A BOY BAND!

WHICH ONE OF YOU OTHER DILLOS JACKED MY KIBBLES?!

Just a Few Drops Flavors Anything



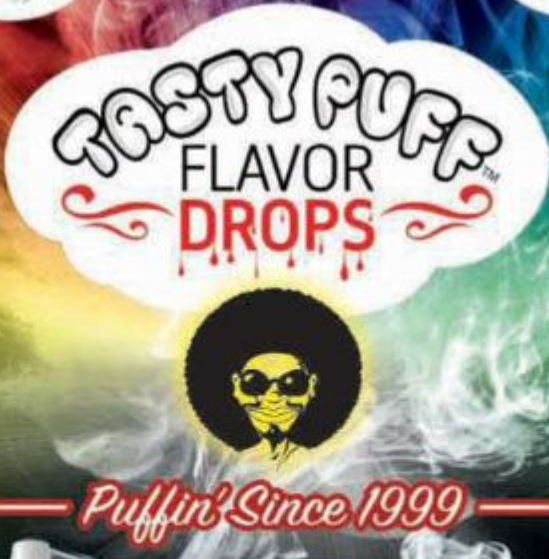
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4. Replace tip and cap



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Pot Shots

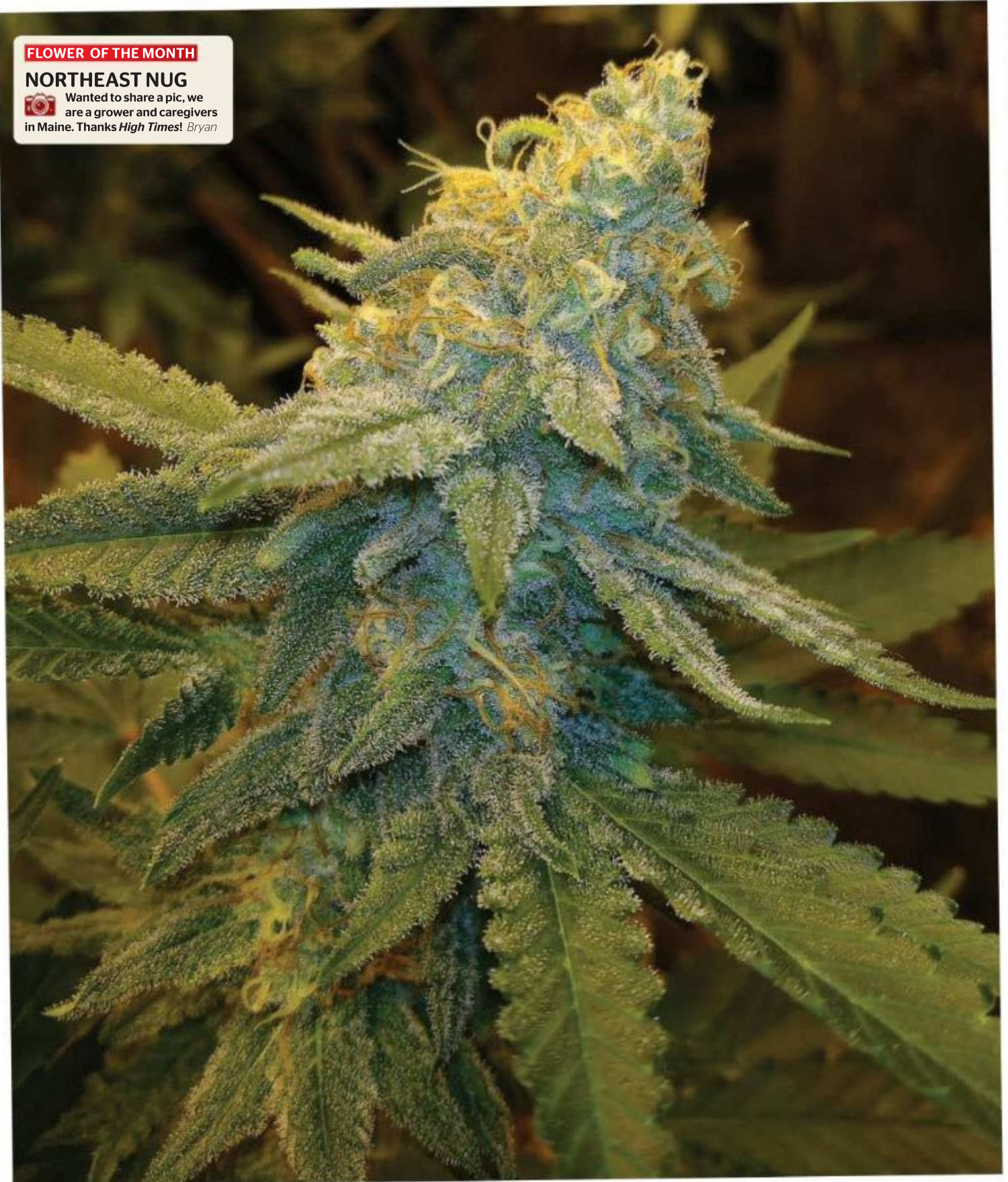
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FLOWER OF THE MONTH

NORTHEAST NUG

 Wanted to share a pic, we are a grower and caregivers in Maine. Thanks *High Times!* *Bryan*

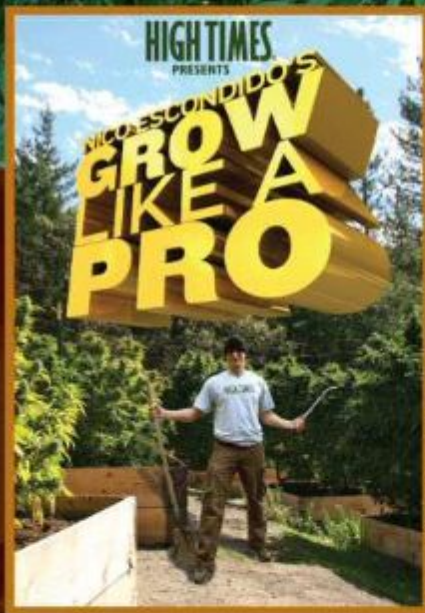


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GROWER OF THE MONTH

LEAFY GREENS

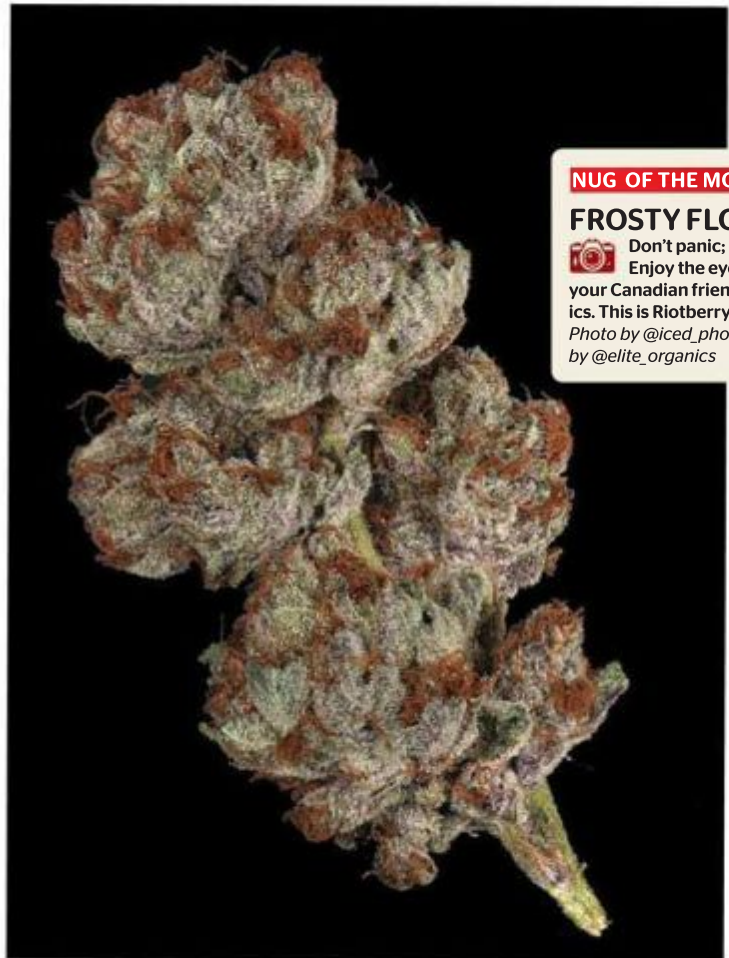
Here's a pic of Boomer, the keeper of the corn, in his Bubba Kush suit. We almost harvested his ass by mistake. All plants did great as usual here at 8000 feet in the Colorado Rockies. Thanks Denver Clone Store for the genetics. *Steve Bennett*



CRITTER OF THE MONTH

DOG DAY AFTERNOON

My guard dog smiling ear to ear in the grow! *Mike R.*



NUG OF THE MONTH

FROSTY FLOWER

Don't panic; it's organic! Enjoy the eye candy from your Canadian friends at Elite Organics. This is Riotberry Headband. Photo by @iced_photography, grown by @elite_organics

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Jorge Cervantes

ULTIMATE GROW

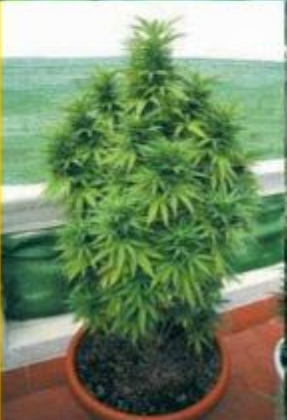
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HIGH TIMES PRESENTS

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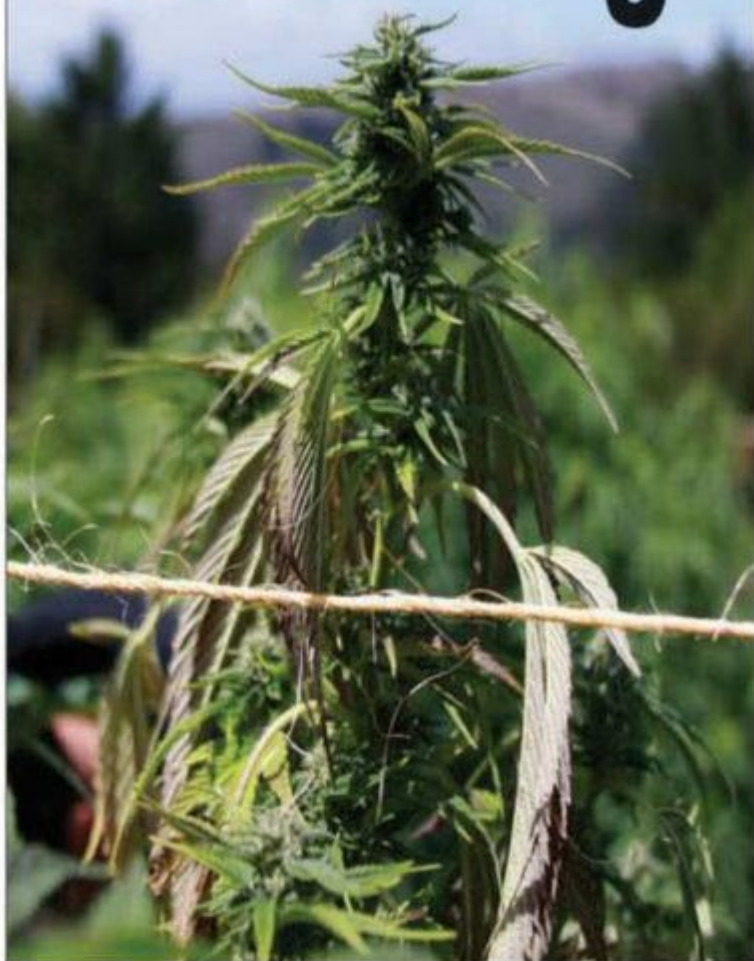
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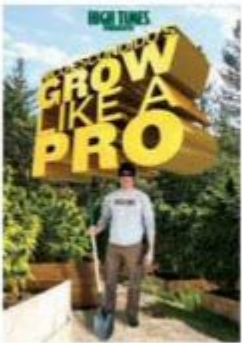
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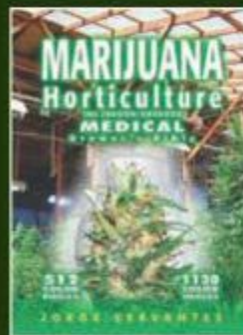


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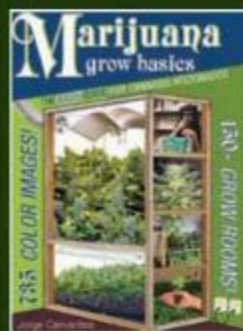
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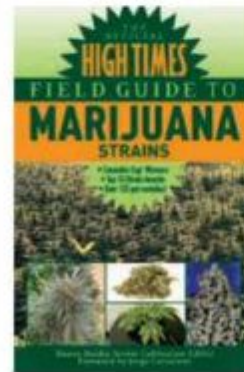


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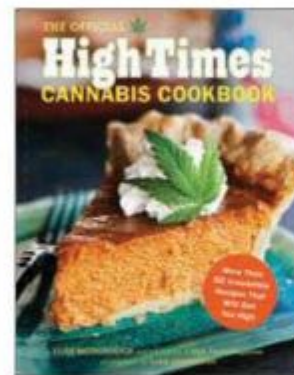


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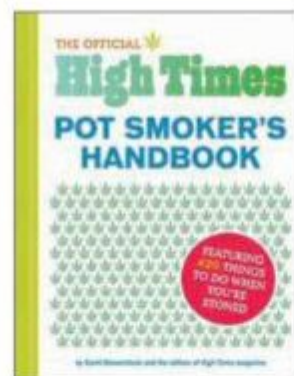
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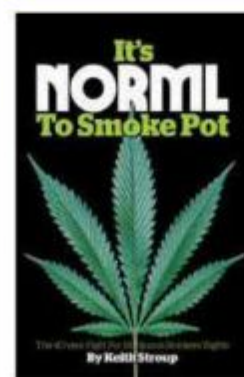
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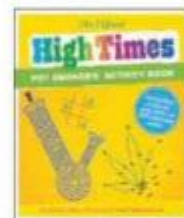
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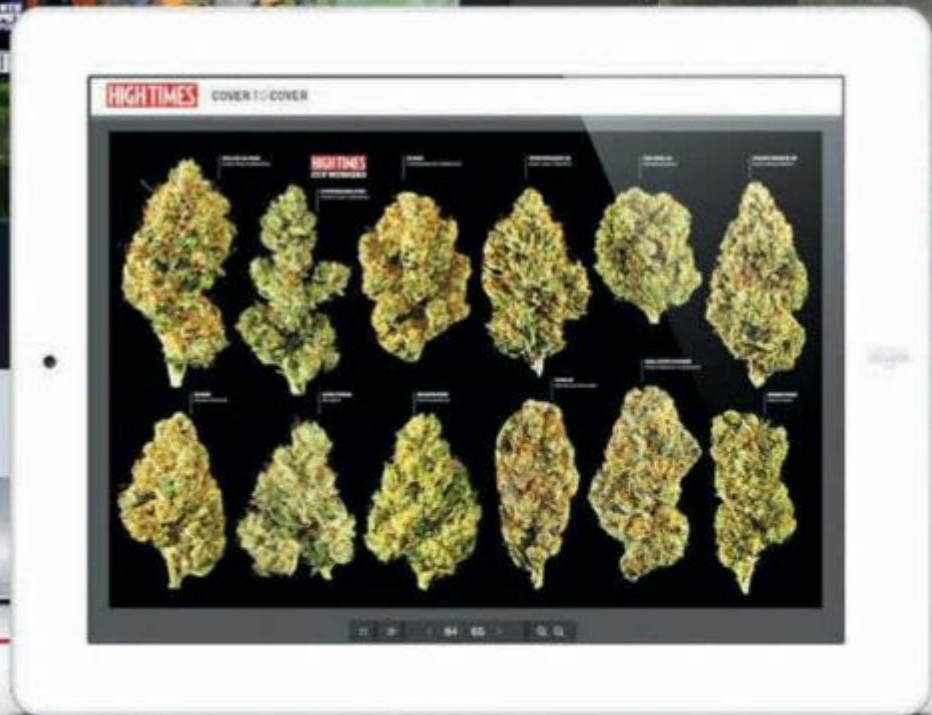
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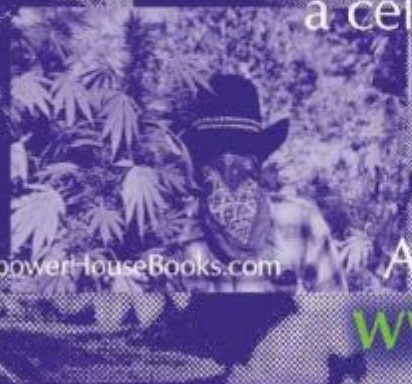
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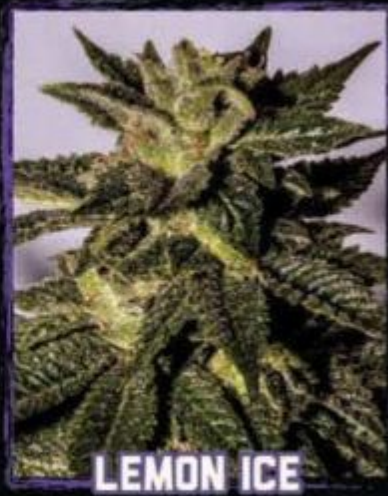


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